Planned Abundance

Eden Protocols

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In Eden We Were (Will Be) Gardeners

Escaping the traditional 'Sissyfussian' farming dilemma with a proven 'no-till', generative approach to soil management and gardening.

Your holistic guide to a minimum work, maximum benefit, lifestyle that you will be able to, and more importantly, will *want* to, sustain.

A lifestyle without waste. A lifestyle based upon a continual re-cycling of throughputs which makes external inputs (imports) unnecessary.

Plan, design and build optimal dwellings, greenhouses, heating systems, gardens, dams, ponds, swales, to become as self-supporting, from local resources, as you choose.

Remember that in Eden we were gardeners (not farmers).

Our 'orchestrated' Eden will aim for biological complexity, while limiting ourselves to technological simplicity. We will live simpler, more rewarding, more satisfying lives, in a culturally richer, more diverse, creative, and 'open', society.

Read all the accounts of the various 'Eden 'and 'Golden Age' scenarios described in all the ancient and more recent 'religions' of the world and you will find that one thing they all have in common is no mention of animals being exploited in any way. Ask any farmer, especially a dairy farmer, and they will tell you that the most time intensive and inconvenient parts of farming are those related to animals. A vegan lifestyle, with true 'Eden' gardening practices, saves us, and our environment, from a lot of destructive, and completely avoidable stress, irritation, and 'work'.

My interpretation of 'Foucault's pendulum'

The point of Salman Rushdie's brilliant novel 'Foucault's pendulum' is that you can 'hang' an infinite number of possible 'mystical' interpretations and 'meanings' on the most prosaic of objects, random events, co-incidences, numbers, and symbols. 'Esoteric' simply means 'secret' meanings. Or more precisely, meanings ascribed to something by a particular 'closed' group, or if you like 'cult'.

The one 'meaning' I want you to comprehend about Freemasonry, and all the other 'secret' societies that revolve around it, and intersect with it, like the intersecting boards of directors of global corporations, is that the supposed 'star of David' has no biblical connection to the Biblical / Torah Jews.

It represented, at one time, the union of Yah, the sky god, represented by the up-pointing triangle of aggression, progress, and ambition, and Weh, the female deity, represented by the upside down triangle, representing the original 'holy grail' 'chalice', or womb of fertility, the 'carrier' of life. But today that 'Pentagram' has been adopted by the Zionist 'Jews', who have no connection to the Biblical 'Jews', in any 'genetic' sense, though they maintain some of the biblical Jews 'cultural' traditions in a purely nominal sense, with no authentic relationship to the god of the Torah.

However long before the 'Jews' left Egypt and then Babylon, with their 'esoteric' knowledge, the first copy of the original 'Ark of the Covenant' was buried along with a Pharaoh. This 'agreement' was between the 'visitors' from the star system 'Sirius', or 'Dog-Star'. This covenant represented, long before Moses' exclusivist and exceptionalist '10 Commandments', the original 'Dog'Ma'. The 'Ma' (ethics) of the visitors from the 'Dog' Star solar system. Sirius. The original 'Dogma'.

The Pentagram we see everywhere in 'esoteric' secret society circles is a symbol for Sirius. The Dog Star. From where the 'visitors' who gave the ancient Egyptians their still secret wisdom, and technology to build the pyramids, came, and returned.

On one level all 'modern' religion is astro-theology. You have a god-man representing the Sun, surrounded by 12 apostles (Jesus), or carrying out 12 'tasks' (Hercules). Just like in music you have the 'tonic', separated from its octave, by 12 steps (semi-tones). Just like you have the 12 steps of Horus, dividing the day from the night.

Each sunset is the death of the godman. But fear not. For each sunrise is the rebirth of the godman.

Each winter solstice (shortest day of the year in the northern hemisphere) is the death of the year, often celebrated around what we today call 'Halloween', what the ancients called 'The Day of The Dead' (Samhain). But fear not. Around the 26th of December the New Year is born.

Just like the Autumnal Equinox represents the death of nature, as the leaves fall and turn to brown, and most of nature (apart from the evergreens which have become our 'X-mas tree', representing as they do eternal life and hope in the face of grey, miserable winter). But again, fear ye not. For at the time of Vernal Equinox, all of nature, metaphorically represented in the death and re-birth of a god-man like Jesus, is re-born. A symbol of eternal life.

This 'God-man' always wears a halo, as any being coming from the Sun, towards us, would 'wear'. So kings are 'crowned' with a symbolic halo. Saints of all religions 'wear' a halo of some sort, indicating that they 'come from' the Sun, the source of most 'life' on earth (excepting perhaps creatures who evolved at volcanic vents on the oceans floor), the creator (of everything in the elemental table up to Iron), and the original 'god' that was anthropocentrised into Surya, Jesus, and Krishna.

Twelve is the most 'useful' small number, having the highest number of divisors. The skies are traditionally divided into 12 'astrological signs'. 12 hours. A musical interval of a half-step / semi-tone divides any note from its octave, to produce harmony. This is 'The harmony/music of the celestial spheres'.

The ancients divided the year, ultimately, into 12 relatively equal 'months', closely mirroring the lunar cycles.

They divided these 12 months into equal 'weeks' of 7 days. This corresponded to the 4 most obvious 'quarters' of the moon as it waxed, new moon, quarter moon, half moon, three quarter moon, and full moon, and the 4 quarters again, in reverse, as in 'waned'.

Originally Saturn's day, Saturday, was the 'holy' day, honoring the old God Saturn, the 'dark sun'. Saturnalia was the biggest feast of the year. The 'orgiastic' celebration. It was Saturn who had once ruled during the original 'golden age', when animals and man, and gods, lived together in peace on this earth. The age of abundance. Clearly a vegan age. Very similar to the later notion of 'A Garden of Eden'. This was before 'the fall'. In religions much older than our Judeo-Christian-Islamic cults of 'the book'. That book of course re-wrote history. Something the 'Jews' have been doing since they began writing, 6000 or so years ago.

Consider how 1+2=3. 3+4=7. 7+5=12. You have your musical intervals or 'steps'. Just like the day was divided into the 'steps of Horus', Horus being the sun god.

60 is the next most useful number for mathematics after 12. It is the next highest number with a large enough number of divisors / factors to deal with all of the needs of the ancient world for dividing things into smaller units.

Such as dividing each 'step' of Horus into 60 smaller units we call minutes. Then dividing these into yet smaller units we call seconds. There weren't any practical ways of measuring units smaller than a second. And people had no reason to 'observe' units smaller than this.

The night sky was divided into 12 equal parts or 'constellations'. These were each assigned a 'sign' of the 'zodiac'. It is logical to divide a compass into the 4 Cardinal points. And then to sub-divide these further, adding 4 more points. Thus we get the number 8, representing Saturn.

Being able to measure and predict the movements and locations of the sun, moon, planets, and astrological signs, was the first 'profession' after the more obvious one. It was the profession of the astro-theologian. The priest. It enabled them to draw up astrological charts, and predict solar and lunar eclipses. To build temples where the sun would 'rise' on the winter solstice (shortest day and 'death' of the sun), and appear in a predicted position during the vernal equinox (spring day of equal day and night, and the 're-birth' of nature), autumnal equinox (death of nature), and summer solstice (longest day)..

This is why the Sumerians and then Babylonians had a base 60 mathematics system. A system for accounting and measuring time, money, distances, and volumes.

There is nothing 'mystical' about the constant repetitions of the number 12, and its divisors 3, 4, and 6, nor the number 7, and its multiples 49, and 70.

Interesting to me is the constant repetition of the number 40 in the Torah, Bible, and other cultic 'mystery religions'. Consider it as 5 x 8 and it may make more sense. 8 was the number assigned to Saturn, the original 'god'. But it probably relates to a cube, which, when folded out, has sides 1, 3, and 4 squares long. A cube has its own implicit 'meanings' of stability and security, just like a 'swastika', with its implications of constant forward momentum, and its sun symbolism, is an obvious, and historically universal, symbol for prosperity and progress, and generative power. Of course some Orthodox (straight) Jews wear a cube on their forehead, as Muslims walk around the cube that houses the black meteorite (Lucifer the light-bringer falling from heaven to earth), forming 'rings' of humans, in imitation of Saturn, the earlier 'Black-sun' god who presided over the ancient's 'golden age' long before his position was usurped by the other sun-god, representing our golden sun. Saturn's-day (Saturday) is still the 'day of rest' and 'holy' day for Muslims.

The ‘Jews’ adopted Sun day as their holy day. It was the ‘seventh’ (Sabbath) day, from much earlier Babylonian religions that worshipped the sun in the form of various deities from Nimrod to Baal.

‘Christians’ maintained this ‘Sabbath’ to allow a smooth transition from the previously dominant worship of the god-man Jesus was modelled on, Mithra, a sun god. All the stories about Mithra were transposed onto the new god-man Jesus. Virgin birth (sunrise), life of shining purity and goodness (the day), death (sun-set), and re-birth (sun-rise of the next day). The Romans had been worshipping their sun god Mithra on ‘Sun’ day. Sunday. So like most of the older rituals and holy days, this practice was adopted by the new cult of Christianity, the ‘Roman Catholic Church’, to ease the transition, and ultimately eradicate any memory of the ‘true’ meanings of those holy days and rituals.

But this is where it gets tricky for students of the ‘esoteric’ (secret) society symbolism. We have, as we go back in time, three different ‘suns’ that are being worshipped. Our solar systems sun, as the ‘Aton’ of Akhenaton, then later the ‘Sun’ of the Mithraic cult. Saturn, as the ‘black’ sun of the ancient Sumerian and Babylonians mystery religions. And from before Akhenaton (a Pharaoh of dynasty that invaded and usurped power in Egypt from the earlier Pharaonic dynasties), the sun was not our sun, but the sun of another solar system. Sirius. The ‘Dog’-star. The ancient Egyptian pharaohs were visited by one or more god (dog) from this dog (god) star. This ‘god’ gave them the ‘Ma’ of ‘Dog’. The original Dogma, which was the basis of their long, just, successful rule, until the invasion of the new Dynasty, which Akhenaton would later be born into.

In ancient Sumeria, rather than hold ‘Olympic games’ or fight wars, the cities competed for ‘who had the best ‘Ma’. Whose city charter was the best. Whose code of ethics was the most superior. In terms of bringing the people prosperity, justice, and happiness. The U.S constitution was the latest ‘Ma’ offered to the world. It won hands down, compared to any other ‘Ma’ the rest of the world’s cities and nations could offer. So sad to see it has been side-stepped, violated by its own supposed ‘protectors’, in the form of Executive orders, Patriot acts, and emergency decrees.

Any time you see a pentagram, remember that it is a symbol for Sirius. And thus the ‘Ma’ of Dog. The original ‘Dog’ –‘Ma’. Dogma. The original code of ethics. It was considered the most valuable thing in the ancient world, this code of ethics. So valuable that a copy of the original ‘Ark of the covenant’, which contained this ‘constitution’, was buried with every Pharaoh of the original line that ‘received’ it directly from the visitor from Sirius. The ‘Dog-Star’. The original Dog-man. The original ‘God’-man.

The ‘Jews’ carried an Ark of the covenant with them from Egypt, after ransacking the nation, stealing all the gold and other valuables they could carry, and escaping into the desert. Were they lead by Akhenaton, the ‘rebel’ pharaoh, himself? Was the ‘Moses’ (Priest of Aton) we hear so much about actually Akhenaton?

Just look to the northern winter sky, through the mist, and you will see this star sparkling and glittering like a pentagram. This is even the star associated with the myths associated with the births of the baby Jesus, and Buddha.

So before you worry about the mystical meanings of symbols and numbers, go back to their source. It is relatively prosaic. Of course these ‘secrets’ are revealed only to the 'initiates'. In the 'mystery religions' it was those who could afford the 'rites'. Those in positions of power. Those with great wealth. Or those 'welcomed' into this inner circle, like their 'modern' equivalents the higher order Freemasons, Jesuits, Skull and Bones, Illuminati, and Council on Foreign Relations.

Of course the natural symbol for this sun in the animal kingdom is the lion. King of the jungle. With its natural 'crown' or 'halo' of gold, its mane. So there will always be lions on royal coats of arms, adoring institutions of power and prestige.

So that was my contribution to Salman Rushdie's novel. What follows next was inspired by Foucault's concept itself.

Consider consciousness as a continuum. From the mineral consciousness, of simply 'being', to the highest levels of total awareness you might attribute to a supreme being.

Now hand that continuum with the mineral consciousness as the stationary point of a pendulum, with the supreme consciousness as the 'weight' at the 'end' of the pendulum.

Animism is the awareness that all things are conscious at some level. It is a question of degree. That consciousness is universal. Everything is aware of something. From mineral, to vegetable, to animal.

Most humans would imagine themselves near the 'end' of the pendulum that forms the greatest 'arc' as the pendulum 'swings'.

This is where the 'extremes' of existence, of experience, of sensation, of consciousness, are the most volatile. Swinging back and forth between pleasure and pain, ecstasy and misery.

This is where you move the fastest, covering the widest range of experiences. Life out here is a wild ride.

As you move along this pendulum, back up *towards* the point where the pendulum is 'fixed', the consciousness is more stable. The fluctuations less extreme. Things move slower, and vary less.

At some theoretical point, where the pendulum is actually 'fixed', there is no movement at all. In 'reality' there is always the slightest of movement. For where does a piece of string start and end, on a quantum level?

But at this 'fixed' point itself there would be no movement at all.

The equivalent of pure 'being'. Without any change. Without movement.

But you are still on the same pendulum as every other 'experience engine'. Every other particle. Every other 'electro-magnetic unit of existence'. There is only one pendulum. The question is where you are on it.

If you looked out down the swinging pendulum, you would see the other 'experience engines' in their volatile, energetic flights back and forwards, between misery and bliss. Orgasmic delight and horrific pain.

At the theoretical 'stationary point' of this pendulum, there is relative 'no-thing-ness'. The 'Nirvana' of no-self. For the experience of being is so stable and neutral that there is no pain, nor pleasure. No fear or hope. No lust or hate. No experience as such. Just the experience of pure being. Of existing.

There is nothing in existence which is not conscious at some level. Conscious of being. The question is of degree. Of what it is aware of.

Just compare Einstein with 'Ein Stein' (a rock). One of them might be joyfully celebrating, like in Gerald Manley Hopkin's poems, its 'rockfullness' to the full. Rock on! While Einstein enjoys his mental scientific experiments.

When the constant back and forth swing of the more volatile ends of the pendulum become too much, we long for the simpler, more stable, calmer, tranquil, peaceful 'heaven' or 'nirvana' of the un-moving end of the pendulum.

Life in the fast lane can get too much. And so we year to 'slow it down a little'. To take a break. And that represents our longing for Nirvana, for Heaven.

The Garden of Eden is located somewhere along that pendulum. Probably closer to the slower moving, less volatile end, than today's society.

Ideally we would have the opportunity to move along that pendulum, up and down, during the course of any one existence.

To be able to live and work in the Garden of Eden, and still, from time to time, get out to enjoy a little more excitement. To ride bicycles around our garden, most of the time. But now and then rent out a rally car for a weekend. To enjoy the peace and calm of a prosperous, simple lifestyle, in a calm, cheerful community, for the most part, but now and then be free to go out on 'adventures' in the less 'safe' world.

Ideally we would all find a balance that suits our own tastes. Our own needs for stimulation or peace and quiet. Our own level of stimulation. And not have one group force their own preferences upon us, just because they have the power to do so.

Ideally we would be able to have a secure home, and lifestyle, but be free to travel now and then, to enjoy 'adventures' in the wider world. To have both security and excitement. Paid for by our own effort, sacrifice, and risk. And never at the expense of another's effort, sacrifice, and risk. Especially never without their holistically informed consent. And never without our own holistically informed consent.

So animism, perhaps pre-dating the astro-theology [the sun (originally Sirius, the 'Dog'-star), planets, and the 12 astrological signs], of what most of us recognise as 'religion', appears to have had it right all along.

The reason why animism has never established itself is that it is at odds with our current human nature. Animism forces us to recognise all things as 'alive'. And thus to consider the interests of all things, in our cost-benefit analyses. Animism precludes slavery and opportunistic exploitation of any kind. It precludes the use of deceit, deception, and propaganda in 'tricking' other beings into giving their mis-informed consent.

You can't use animism to concentrate power and authority in a centralised state. It offers no 'fates worse than death' to those who won't submit to these authorities. You can't 'sell' animism, like you can 'sell' redemption from original sin, or 'indulgences' for later ones. You cannot control people's minds with it. You cannot manipulate people with it. You can't coerce people with it. You can't get 'tithes' for it. There is no 'intercession' you can offer, in exchange for submission, indulgences, tithes, and other forms of wealth and power.

So animism fell by the wayside, to be replaced by the Astro-theological (sun-worshipping) 'religions' that evolved into today's Judaism, Christianity, and then Islam.

The ‘modern’ religions replaced Neptune with St. Peter, Mars with St. Mark, Venus with Mary, and Jupiter with ‘God’.

The 12 constellations ‘morphed’ into, first the 12 tribes of Jacob (Is-Ra-El) centered on the 13th (priestly caste) tribe of Aaron, like the 12 constellations circling the sun, and then later into the 12 apostles and their sun-god Jesus. Of course Jesus was a direct a new-incarnation (recycling) of the sun god Mithra, but represents the classic archetypical sun god represented in deities from Surya, to Nimrod.

I explain all this in detail in ‘Religion’.

My point here is something quite new to me. This idea of the ‘pendulum’ came to me after decades of research and writing, over a decade after having read ‘Foucault’s pendulum’, one of the great works of the Author Salman Rushdie, who wrote ‘The Satanic Verses’.

I don’t know if Foucault intended the same interpretations I have given the pendulum. But I can state that, after reflecting on the oldest and the newest ‘religious’ beliefs known to humanity, I consider this insight a real breakthrough. A real holistic ‘binder’ of all the understandings humanity has ever had of **TROONATNOOR, The Realities of Our Natures and the Nature of Our Realities**.

Note that some of my books have been ‘blocked’ and thus censored. So if you are curious as to who gets to decide what you get to read, and why, email me for copies of those books in E-book or PDF format. And if you ever hear anyone demonise me in any way, ask yourself who is trying to undermine my credibility in your eyes, and what motives they have. Benevolent? Or perhaps malicious, and malevolent.

Expressing the Kingdom of Heaven with*in* us

Religious books like ‘Pilgrims’ progress’, ‘The Bible’, and the Koran, are among the worst forms of terrorism. Using the threat of eternal suffering to coerce people into submitting to some form of authority. Usually called *religious* authority. To stick to some specific, arbitrary, ‘straight path’. Some dogma. Simply out of FEAR. The threat of horrific, and eternal, pain, suffering, and misery.

Terrorism is all about terrorizing people with threats. Either submit to the will of some external ‘authority’, or risk death, and fates *worse* than death.

Setting up some particular book as ‘holy’, and defining it as ‘sacred’ and ‘untouchable’, beyond criticism, beyond revision, beyond debunking, sets up its contents for a long and healthy life of terrorizing untold generations to come.

The few who realise that these books are lies will keep this realisation to themselves, to avoid being victimized, fined, punished, imprisoned, tortured, and killed, by ‘the authorities’ who derive so many benefits, such as power, and wealth, from those lies.

Occasionally a 'revisionist' will take the chance and speak up. They will be tortured, burned alive, utterly destroyed. Reinforcing the natural tendency among 'awake' individuals to self-censorship.

As such it will always appear to most sheeple that there are no reasons to doubt the 'official fiction' of their religion. They will point out the clear consensus among their peers, from the top to the bottom of the social hierarchy. There will be no apparent dissent at all. It will appear as if the 'case if closed'. The dogma proven. Self-evident. Even if they themselves may have doubts, they dismiss these, as being without basis. For everyone ELSE is clearly seeing and experiencing a reality in which the dogma is true. So why risk being outcast? Being ridiculed. Marginalised. Punished. Tortured. Fined. Killed? Why risk 'fates worse than death'? Simply on a PERSONAL 'intuition' or 'feeling'.

That is how all lies survive over the generations. They are reproduced.

Like 'The Holocaust' religion of the early Zionists. And the 'Catastrophic anthropocentric global climate change' religion of the current New World Order (Zionists). It is a criminal offence to 'deny' the one, and soon it will be a criminal offence to 'deny' the other. Where it is not a criminal offence yet, it is still an act of career suicide to express views contrary to the current canon of dogmatic fiction. Whether or not you have scientific proof, like a Galileo, you will suffer the same fate he did at the hands of the beneficiary classes of his day. The beneficiaries of a set of lies called 'Catholicism'.

The more informed beneficiaries, and less deluded participants, will be aware that all religions (as opposed to spiritual-ethical-moral philosophies), are based on lies. However they will define these lies as 'noble'. In reality because they serve the interests of a very narrow group of beneficiaries called 'nobles'. But in theory because they are supposed to serve 'the best interests of everyone'.

These 'noble' lies tend to be wildly imbalanced towards the interests of the most powerful, hegemonic, elites. The Priest classes and 'nobility' in the 'good old days'. Today the Banksters and Corporate warlords.

The distinction between 'religious' and 'secular' (worldly) has, in practice, proved superficial and nominal. The Priest classes have tended to exercise and exploit their power as much as any 'secular' hegemons have. Their aims have proven to be as sensual and worldly as any self-professed hedonistic warlord.

Religion is intended to allow a centralised authority to enslave as many people, over as large an area of terrain, as possible. Today the old religion based empires like Rome, with its 'Roman Catholic Church', are being replaced by a 'New World Order' of Banksters.

The authorities intend centralizing all power in their own hands. They have their new 'noble' lies (and thus 'religions') like 'man-made global climate change tipping point crisis', 'The Holocaust', and 'gun control', to 'unite' us all against a common threat.

Through the new international laws disguised as 'free trade agreements', the Banksters and their global corporations will have a free hand to act as they please. Without ever having to ask for anyone's consent. They will be free to override any nation's internal laws. They will have no need to respect the sovereignty of any nation. For nations will soon be sovereign in name only.

Yes folks, the entire world will soon have imposed upon it the very same 'generous' offer made by the Israeli government to the Palestinians. To be allowed to pretend to be sovereign nations, whilst retaining almost no control over their own territorial waters, air, land, communications, or infrastructure.

Carbon taxes will be the ultimate 'taxation without representation'.

Soon the police of every nation will become so militarized, with such high tech weapons, which the temporary freedom invested in the general population by the relative low cost of firearms will evaporate. In any case, the last nation with a population that is armed and able to defend its own constitutional rights, and liberty, will soon be disarmed. More 'faked' mass shootings and 'false flag attacks' will engineer the public's impressions so vividly, and construct public opinion so forcefully, that, by increments, private gun ownership in the U.S.A will become a distant memory.

Remember that every tyrant in history, from Pol Pot to Mao to Stalin, disarmed their populations before beginning their reigns of terror. It will be no different this time.

Soon we will live in a cashless society where 'big brother' will have total oversight of your every purchase and activity. And the ability to totally 'deny' you electronic access to your e-funds, without any 'due process'. Simply say something the state does not want you to say, let along publish it, let alone publicly protest any action of the state, and you will find yourself in desperate poverty, totally dependent on the charity of the state, or private individuals.

This cashless society is already being introduced in increments. Today you won't be able to pay for anything significant in cash. The large sum notes are being withdrawn, and even banks are beginning to refuse to accept cash deposits.

The cashless society will, like all the other 'control grid elements', be offered as a safer, more convenient alternative to cash. And then slowly the option of cash will be totally withdrawn. You won't have a choice but to conduct all your transactions electronically.

The full spectrum propaganda machine that imprinted 'The Holocaust',

'Man-made global climate change (tipping point-crisis)', 'Sandy Hook', '911' and

'evil Hollywood-style Nazi's Vs Allied (even Soviet) 'liberators', in your brain, from the moment you were born, will 'sell' every change they make as 'positive', or at worst, 'necessary'. To protect you from terrorism, mass shootings, and yourself.

So as they 'liberate' you of every last little freedom you once took for granted, you will be 'sold' a bunch of 'noble' lies to trick you into compliance, even before they have the physical force in place to coerce you into submitting.

The New World Order loves 'centralization' of everything. They hate 'independent' anything. Centralised things are easier to control. So they go for 'large scale' farming practices. Simply to remain in control of the food supply. For as long as they control the food supply, and the money supply, and the supply of information and 'news', and thus what you think, and how you feel about it, they have you as enslaved as any feudal warlord, or Middle Ages Catholic Pope.

Remember that true power is unobtrusive. It is wielded by the puppet masters pulling the strings, behind the scenes. All you ever get to see are their puppets. The 'shadows on the cave walls'.

The 'Shoah business', the Hollywood 'Holocaust' genre, took over the baton from the earlier WWI and WWII anti-German war propaganda. It showed how effective and profitable propaganda can be. Now the new target for demonisation is Islam. Most people have been thoroughly convinced that 'The Holocaust' happened, and that Nazis', well Germans in general, are evil, and any remnants of 'independent thought' have been effectively silenced by the criminalization of free thought known as 'hate crime laws'. So the money changes can now focus on the demonisation of Islam, in preparation for WWIII. They carried out that joint C.I.A – MOSSAD 'false flag' we call '911' to get the ball rolling.

But the weaponisation of mass media began long ago.

'Pilgrim's progress' is a threat to 'stay on the path marked out for you to travel by your masters'. If you keep to it, from birth to death, you will avoid an eternity of misery and suffering. The ultimate weaponisation of words. The ultimate form of terrorism.

Compare that to truly noble novels like Hermann Hesse's 'Steppenwolf', and Rudyard Kipling's 'Kim'.

I hope you have *read*, or *will* read, Rudyard Kipling's novel 'Kim'. It is a wonderful novel in which a Tibetan Buddhist Holy Man has spent his entire life searching for his nirvana in the form of a miraculous river. He is now old, barely able to walk, and blind. He has travelled far and wide in his quest. His own 'holy grail'. He had expected to find some marvelous, wonderful river. The river of his dreams and hopes. A mythical river. Surely it would be a spectacularly wondrous and beauteous sight? Like some bejeweled grail, or 'second coming' with angels and trumpets blaring. For that is what we are taught to expect by 'religion'.

What the holy man finally finds is the true meaning of salvation. That *all* the rivers of the world, *all* the creeks, canals, and muddy creeks have the same potential power of redemption and salvation. Ironically it was only after the holy man had become blind, and at the point of death, that he could 'see' this truth. And thus find his nirvana. His salvation. In the muddy irrigation ditch of a humble farm. It was a matter of finding the right state of mind. For heaven is within us. Not some 'special' place outside of ourselves.

We are all like travelers on some American grail hunter travelling along the German Autobahn system, searching for a mythical lost city called 'Ausfahrt', where we hope to find salvation. The tourist will continue driving on, stopping at the petrol stations and rest areas, to ask fellow travelers if they know anything of this 'Ausfahrt'. Their 'holy grail'. Maybe they have heard rumors? Maybe they have seen something?

I find it extremely disappointing, and even suspicious, that the Hollywood version of the film had to totally destroy this powerful message by replacing it with a more obvious 'happy' ending. The novel's ending is not the happiness that most people are conditioned to define as a 'happy end'. So in the recent Hollywood film version, Kim, feeling sorry for the old man, feels he should 'lie' and tell him that they have finally found the miraculous river the old fool has been wasting his life seeking. He couldn't bear the thought of disappointing the old man. Of breaking his heart. So Kim describes a wondrous imagined vision of a fantastical river for the old man, so he can die in peace, having found his 'grail'.

But in the original novel Kipling makes a much more powerful and empowering point. That the truth is right in front of us. It is in everything we see, hear, feel, taste, and touch. The 'holy grail' is not some precious jewel encrusted chalice from which some god had once taken a sip. It is just as likely to be a humble plastic cup used to offer a thirsty child or elderly person a sip of water. Or the PVC piping used to drip-irrigate an organic kitchen garden.

In fact the 'grail' is a symbol for fertility. For the 'womb' of life. That is the miracle. The true salvation and peace comes from serving ourselves best by serving others. Every act of kindness, consideration, and conscientiousness, *which* is the expression of the kingdom of heaven within us. *That* is what will bring about a 'heaven on earth'. Not some god in the sky being announced by angels and blaring trumpets. Not the recovery of some Holy Grail, or lost ark. Not bathing in some 'holy' river, or making some pilgrimage to some supposed 'holy' site.

Our traveler on the German Autobahn of life could take *any* of the 'exits' off that freeway, and be just as likely to find their paradise. 'Ausfahrt' is German for 'exit', you see. It is not a matter of hunting high and low for the grail. It is a matter of looking within your own self. Finding peace and bliss in yourself. Expressing the best of your nature, in your every thought, word, and deed. Your every intention.

Every moment, and the 'Bardot' between moments, offers the chance of redemption and salvation. A chance to express 'The Kingdom of Heaven' that is within each of us.

Most cultures include stories of a 'Garden of Eden', from which we were 'kicked out'.

Remember that Adam and Eve were *gardeners*. *Not* farmers.

It was not until they were forced out of Eden that they had to 'Toil with the plow'. That they were forced to' live by the sweat of their brows'. It was a punishment. Not a promotion.

So now we shall consider how far we can come to recreating that 'Garden of Eden'. How we can put away the plow of the *farmer*. And once more become *gardeners*.

Perhaps we will regain paradise lost. Or gain a paradise we never actually enjoyed, but always aspired to.

A paradise that combines edible forests of fruits, nuts, and berries, with non-tilled perennial and annual crops of vegetables, nuts, fruits, and medicinal and savory herbs and spices.

Remember that most garden perennials are self-seeding. Your ‘work’ as a gardener will soon be limited to merely ‘hunting’ for delectable, then ‘gathering’ up your harvests.

A paradise in which we continually improve the soil, and can feel proud, rather than ashamed, of the legacy we leave those who follow us.

A paradise in which we find health, vitality, and well-being for *all* the sentient beings that share it.

If I need to explain to you that a true Garden of Eden must necessarily be Vegan, then please refer to my other TROONATNOOR books. It would be inappropriate to free slaves knowing they intend enslaving other sentient beings as soon as they are freed. I would hate to ‘aid and abet’ willfully cruel, violent, unjust, monsters. Such monsters still have a lot of suffering to endure before they have finally ‘learned’ the lesson karma has to teach. The lessons of empathy. Of compassion. Of respect for all living beings. Of self-respect. Of ‘The golden rule’. Of ‘The Optimal Ethics Generator’.

For those of you who are ready to seek a Vegan lifestyle, I can offer the following.

An escape from the path we have been hurtling down. An escape from the lives we have been tricked into enduring. An escape to lives *worth* living. Lives *worth* reproducing. Lives which we are free to end when we choose, by the most painless, and dignified means. Lives we can, without the slightest tinge of self-criticism or guilt, pass onto future generations. Lives which we will gladly be new-born into.

A culture worthy of the highest aspirations as expressed in the various ‘golden age’ myths. Myths of a more perfect past? Or dreams of a more perfect future?

But you will have to be ‘worthy’ of such a ‘golden age’, by observing ‘the golden rule’. For as you do unto others, so shall be done unto you. You can never escape this fact. No other being can deliver you, through their ‘intercession’. No being can act as your proxy or ‘scapegoat’. There is no ‘savior’ to ‘save’ you. YOU have to save your*self*.

My ‘Optimal Ethics Generator’ offers the technology you need to understand to really ‘grok’ what the golden rule really means. One day, as in my novels, we will actually have the actual hardware and software version of this technology.

This technology builds on Rawl’s ‘Veil of Ignorance’, which itself builds on Obadiah’s Old Testament warning, ‘For as you do unto others, so shall be done unto you’. Obadiah was of course paraphrasing the age old logic of ‘The Golden Rule’ in a way that would more directly appeal to human self-interest. If you think he was only referring to the fact that ‘You will be judged by the same measure as you judge others, and therefore judge not’, then it’s time to reflect. For your ‘judgements’ refer not only to those of ‘guilt’ or ‘innocence’, but to every definition you form of ‘others’ and ‘yourself’.

Should you choose to define others as mere means to your own ends, then you will end up being defined by others in the same way. ‘Judged’ to be mere ends. Mere inputs to some process. Mere slaves.

It seems that karma provides the suffering by which we are all ‘tempered in the fire’. Not as punishment or reward. But so that we can re-emerge from the flames like the Phoenix. Purified. Unalloyed. Ready to take up life at a higher level of existence. Probably one where we can be trusted with higher powers.

Just consider for a moment what we have done with the powers we already have. And then you might pause and agree that we certainly need to evolve before accessing any further powers is likely to lead to greater happiness for ourselves and those we share our lives with. Especially those we have power over.

I look forward to meeting you on these higher levels one day, when we have all learned the lessons that this world appears to be teaching us. The very simple lesson that we should never treat another sentient being as a mere means to our own ends. That we should never seek to benefit at a cost to other sentient beings. That we should never seek to amass personal wealth, power, and satisfaction, at the expense of injustice to other sentient beings.

I have recorded all the lessons I have learned from my own life, and the lives of men and women who lived before me, that have helped guide me along my own path to ‘enlightenment’. These have taken the form of my TROONATNOOR books. I expect they will become assets to you and yours, as you travel down your own personal paths to freedom.

This guide is for gardeners. Not for farmers. Not for slave masters. Not for exploiters of inequality. But for those who understand that you can only be happy living free among the free. For those who understand that employing means inconsistent with the desired ends is sheer madness. Sheer insanity.

God is not ‘out there somewhere’. God is not a being that can intercede on your behalf, and take your sins upon itself. For all is god. God is all. Being is god. God is being. I am that I am. I am the alpha and the omega. I am. You are. God is. Don’t try to wrap your puny human intellect around such concepts. Don’t idolize the process of being as some nominalization, taking away all its truly sacred character. Don’t anthropomorphize processes as human-like beings. Last of all don’t idolize humanity as the be all and end all of this process. We are simply one of an infinite array of ‘experience engines’ that are constantly emerging and evolving.

The social world as we know it is merely the product of our collective intentions, desires, and actions. No more. No less. There is nothing mystical about this.

However this social world has a huge impact on shaping our physical world, due to the emergent and evolving technologies we have at our disposal.

You don’t need to resort to any level of esoteric mysticism to see that.

How we define reality determines how we interact with it. In these interactions we create new realities. Self-fulfilling prophecies. Placebo effects. Actual institutions that actually torture and murder not only humans, but all the other sentient beings we share this planet with.

Don’t blame anyone else. Take responsibility. Give response-*a*bility. That is what I’ve tried to do. To give you tools. To share insights. To be a Zen practitioner. A Humean Skeptic. An impeccable warrior. A Zoroaster. It was always my nature.

I was, as my mother put it, 'born an old man'. 'Lao Tzu' in Chinese, if you will. Suffering from a very early age, has taught me empathy and compassion. I am ready for the next stage in my evolution. I hope you will soon be also.

For those who have ears to listen, hear. For those that have eyes to see, see.

For the kingdom of heaven (or hell) is within you.

You must 'express' this kingdom of heaven yourself. Make it real. Give it shape and form.

Not wait for some 'savior' to arrive, heralded by angels, to announce the coming of a golden age. A kingdom of heaven on earth.

If you listened to Jesus, to Buddha, to Jain, to Zoroaster, to Akhenaton, and took their words to heart, you would soon find yourself creating that kingdom of heaven with your every action, intention, thought, and desire.

Heaven is not a place you enter into. It is a place you create, by your every thought and deed.

Your salvation lies in your own hands. Not in the hands of some 'savior' who is on its way.

If you merely passively await the 12 Iman (Mahdi), the fifth Buddha (Maitreia), Jesus' second coming, (or the first coming of a Messiah for those 'Jews' who weren't convinced Jesus was their 'Messiah'), or the return of King Arthur, Elvis, or whichever 'savior' you inherited with your belief system, whichever power you were counting on 'interceding' on your behalf, even 'rapturing' you, well you are going to be very disappointed.

But if you express the kingdom of heaven within you, through your every action and thought, you will soon see that kingdom materialize before your eyes.

It will be a Vegan garden. We will be gardeners and caretakers. Of the planet. Of each other.

Please read my TROONATNOOR fiction and non-fiction. For free if you like. Email me at markusrehbachATyahoo.com for copies. And if you want to support my work, you can do so using my markusrehbachATpaypal.com PayPal account.

But the reciprocation I most desire of you is to share what you learn. Without corrupting it. Without distorting it. Without forcing it to fit your pre-existent inherited, imprinted, and conditioned belief system.

Please translate my books into any language you can. Make torrents of my books and seed them. Give everyone who is seeking the opportunity to find books like mine, the chance to find them. Increase their 'discoverability' by referring to them in you blogs and vlogs and social media platform accounts. 'Like' them. 'Share' references to them.

Further, you must actively insist upon the right to freedom of investigation, speech, and publication for *all* people, *every*where. There is nothing noble in passively supporting the right of other people to express opinions you agree with. What is needed is for you to actively support the rights of people to express opinions you find challenging, irritating, and even offensive.

Keep in mind that most of the ideas you take for granted today as self-evident and 'natural' have been, even in relatively recent times, considered offensive to one or more groups in society. These include the very basic claims you have to personal freedom. To the right to vote. To the right to own your own body. Not to mention sexual freedoms. The right to free education. The right to freedom of religion.

Sadly most of those 'taken for granted' freedoms no longer actually exist. Recently basic 'rights' like 'Habeas Corpus', the right to a fair trial, the right to legal representation, the right to freedom of speech, the right of free association, the right to peaceful protest, among many other 'rights', have been taken away from us by 'Executive Orders'.

In fact today the rights we 'take for granted' are no longer rights at all. They are mere privileges that those in power can remove at the stroke of a pen. By 'Executive Orders'. By 'administrative orders'. Made by non-elected authorities. Such as the FDA. The EPA. The E.U. The 'Federal reserve bank'. The U.N. The IMF. The Federal Supreme Court. Often even by local Judges acting outside of the powers granted to them by the Constitution. Whether the German or U.S constitution.

Today, in fact, all our rights are discretionary. They effectively, ultimately, though often obtuse and secret channels, depend upon the whims of the Banksters. The 'money lenders'.

Today true power, the hidden power of the shadow government of Banksters, is completely arbitrary. It has no limits. It does not reflect, let alone respect, the U.S constitution.

I understand much of what I publish will sound outlandish and extreme to anyone who is comfortably embedded in the social reality produced and constantly reproduced and reinforced by the full spectrum, cradle to grave, propaganda machine of the Banksters and their 'Golems'. However if you actually read my books you will at least appreciate my integrity, honesty, moral-ethical ambition, and conscientiousness. If you find any 'hate' in my writings, it is more likely to be a reflexive projection of your discomfort with the truth, than anything intended by me, or representative of my work.

Be very skeptical of the motives of anyone who claims you need to be 'protected' from books. For the *truth* will set you free.

It is very hard to filter out the rare truths out from among the lies they are embedded in, and thus contextually distorted by. We are surrounded by pure propaganda lies. And the more subtle 'controlled opposition', which offers revelatory truths as a means to gain your trust of the source, and thus acceptance of the lies these public personalities and their products have been hired and set up to promote. Remember that the art of the 'confidence trickster', the 'con-man', is to seduce you into trusting them, so that, when it counts, when the stakes are really high, they can 'fleece' you. They pretend to 'reveal' secrets, and sometimes do reveal some secrets harmless to the authorities they work for, knowingly or unwittingly. But like the card-shark, or pool-hall shark of the 20th century 'hustler' movies, they will 'lose' at first, so that later on in their confidence trick, when the stakes are really high, they can take advantage of that trust. That confidence. And it is then that the bumbling card player or pool player suddenly shows their real colors as the expert manipulator. The talented card player or pool player. The Alex Jones, Noam Chomsky, Stefan Molineux, Ed Snowden, Trump, or Julian Assange, who tricks you into defining Islam as your enemy.

You can easily pick out the 'controlled opposition' by the following 'tells'. They continue the 'Holocaust' lie. They continue the official '911' lie about Islamic terrorists hijacking airliners. They simply 'dismiss' any notion that 'Jews' control the mass media, or world financial systems, let alone 'The Fed'. They continue the official lie of a 'man-made global climate change tipping-point crisis'. Some even continue to claim that 'Sandy Hook' was real. That 'The Oklahoma City bombing' was carried out by 'homegrown terrorists'. These are just a few of the more obvious 'tells' which become clear to anyone who understands the truth about all these things.

Of course the truth is very disturbing. It is discomforting. You may even 'hate' the truth, because it is so inconvenient, challenging, and frightening. But does this mean you would voluntarily chose to remain ignorant of the truth?
Would you in fact demand to be 'protected' from such truths?

Be very skeptical of the motives of anyone who would deny you the chance to form your own informed opinions is most likely seeking to enslave you with propaganda, lies, misinformation, fake news, and censorship. You can start by basically ignoring any corporate media. And then the mass media supported by corporate media by way of 'Foundations', with their deceptive names like Soros' 'Open Society', 'Skeptics', 'Black Lives Matter', or 'Democracy Now'. For corporations and fantastically rich Banksters do not 'invest' money for the good of you, the people. They treat foundations as a means to avoid tax, while manipulating public opinion and politics 'behind the scenes'. They use foundations to manufacture public opinion and consent.

Be extremely cautious of falling for apparently 'independent' media that just happens to have a very professional presentation, and wide mass appeal. It is most likely 'controlled opposition'. Please read my books and watch my markus rehbach YouTube channel videos for more explicit details. And yes I name names.

The whole point of being a 'gardener', is that you are a caretaker. A care-taker. You take care of yourself, your partner, your family, your community, and thus your planet. You don't take. You give. And then live off the excess that giving tends to produce.

Our modern society emerged from, and shows all the characteristics of, 'farming'. Exploiting people, animals, and natural resources for our own immediate profit. Consuming up natural capital. Consuming up human capital. Treating all things that are not-us as mere means to our own ends. With no other intrinsic value. Merely valuing things for their extrinsic value, as means to other ends. Our own immediate, short term, selfish ends.

Our culture is defined by a *low* level of mutualism, where all participants benefit from a particular interaction or set of interactions. Of course the slave master will ensure the most valuable of their slaves (due to their talents, skills, beauty, or sex-appeal) will be taken care of, so their talents, skills, and sex appeal can be exploited. And the survival of just enough 'common' workers will need to be ensured, so that the general work that supports society gets done.

But beyond these limits to exploitation, the 'beneficiary classes' will tend to expropriate the maximum amount of value from each and every non-member of these beneficiary classes. The principle of 'exceptionalism' reigns supreme among humans. The 'beneficiary classes' set down supposedly 'universal' rules that apply to all the members of society *except* their own beneficiary class members. Remember that the '10 commandments' only applied to 'Jews'. They were never intended to apply to non-'Jews'. Us 'gentiles' or 'goys'.

The most obvious beneficiary classes were, in the past, the Priest-classes, the Warlords, and later the landed nobility. Later these groups were replaced by the merchant, and then the Bankster classes. Today we might add the 'professional' classes. The evolution of the earlier beneficiary classes has culminated in the hegemony of one class above all others. The Banksters.

Through the Bankster's control of a 'fiat' (worthless) money supply, they have gained total ownership of all the real assets of real value in this world. And with it control of the political process, mass media (through which they gain control of public opinion, manufacture consent, and engineer public perceptions), and the corporatist, fascist state they fashion from the power all this control brings. They control the military power. They control the economic power. They control the education system. They control the judiciary and legal system. They own you. So long as you participate in the system they own and control. And be warned, they are unlikely to tolerate anyone seeking to escape that system. Or worse, inform others about the facts of its existence.

For absolute power is absolutely unobtrusive. The real power is never seen. To identify which group wields this power, simply find out who you are not allowed to criticize. I will leave it at that. If you cannot join the dots, me going to prison forever by 'naming' the hegemons will cost me everything, and benefit no-one.

Due to the extreme imbalances of wealth and power in our society, the dominant mode of interaction is parasitism. This is where one beneficiary class, or individual, benefits at the cost of all the other members of a society.

With the growth of 'globalism', and the nascent 'One world government' or 'New World Order', one single beneficiary class will soon effectively have enslaved the entire planet.

We are not simply talking about one dominant group exploiting their local tribe for their own benefit. We are talking about one worldwide group of Banksters exploiting the entire planet for their own (perceived) benefit.

Commensalism, where one participant (or group) benefits at *no* cost to the other participants (or groups), is unlikely, due to positive and negative externalities of every action ever participant makes.

While this hegemonic group may tolerate small scale, independent gardeners like ourselves, it is anti-pathetic to them to tolerate much independent *any*thing. Their power is based on centralised control of everything. Hence one world central bank. One world currency. One world army. One world education system. One world religion. One world language. One world beneficiary class and one huge mass of enslaved workers. Austerity, total powerlessness, and communism for the masses. Luxury, crony capitalism, and total power for the Banksters.

But if we keep our heads down, and below their radar, they might tolerate us for long enough that we out-live them.

Their system is so 'artificial' that it is doomed to self-implode at some point. Every society based on slavery has collapsed in time. The beneficiary classes always turn upon each other. Human greed is insatiable. Once the beneficiary classes have eliminated all competition from those outside their exclusive group, they tend to start becoming envious and jealous of each other. They plot and scheme. Just look at the final decades of Ancient Rome. Look at Ancient Greece, where the greatest minds were forced to commit suicide, or escape to exile, to avoid their contemporary 'beneficiary classes' lethal responses to their 'criticism'. Socrates took the Hemlock. Aristotle wouldn't let Athens commit the same sin twice, and escaped.

Throughout the dark ages it was a capital crime to criticize 'The Church' and its 'teachings'. It's propaganda. Its brainwashing, imprinting, and conditioning.

Today the new propaganda, created, published, and broadcast by the new hegemonic beneficiary class, is full spectrum. From cradle to grave. It has contaminated our education systems, our radio, newspapers, television, Hollywood feature films, and internet.

Anyone who dares challenge the new lies of the new dominant hegemonic class is imprisoned as a 'hate criminal'. For the masters find all independent thought hateful. All independent research. All independent publication. All independent anything. They love absolute power and control. They hate independence. Freedom. Unless it is exclusively their own. They are, as always, worshippers at the altar of exceptionalism.

It is not hard to identify the original authors and priests of 'exceptionalism'. They wrote the '10 commandments'. Today they write the laws that define independent thought as 'hate crimes'. Starting with 'Holocaust (hoax) denial'. As I write this they are pushing to extend the definition 'hate crime' to include any and all 'criticism of Israel'.

The next 'hate crime' will be 'Man-made global climate change tipping point crisis denial'.

And soon 'hate crimes' will include any questioning, challenge, or criticism of *any*thing the Banksters puppet governments say or do. Any law they introduce.

Any attempt at exposing or reporting of their 'false flags' and 'faked home-grown terrorist incidents' will be a crime. It will not be enough to ridicule those who expose real conspiracies as 'tin hat conspiracy *theorists'*. Soon anyone who makes even the smallest baby-step from the orthodoxy, the official fiction, the propaganda narrative, will be imprisoned in 're-education' camps. Those who prove resistant to the brainwashing they receive there will line up for the guillotine, while a production line of surgeons await their fresh-killed bodies in order to harvest their organs. Organs and cells the beneficiary classes hope will keep them alive forever.

I have been kept from completing this guide by constant revelations which I felt compelled to document in the form of the **TROONATNOOR** '**Welcome to the New World Order**' series.

By publishing those 3 books I committed career suicide. For all my books were banned from even self-publication by Apple i-books, Barnes and Noble, Draft-2-Digital, Smashwords, and the rest. As I write this, my books are only available from one E-book self-publisher, and one paperback self-publisher. How long this will last is uncertain. And so I have made all my books available, free of charge, from various platforms. Email me at markusrehbachATyahoo.com if you can't find them elsewhere. I will send you free copies as long as I am free to send them, and you are free to read them.

So now to a more positive, generative, productive use of my limited time as this experience engine known as Markus Heinrich Rehbach.

This guide is the equivalent of a Glenn Fiddich single malt. It is the result of a process of distillation, over decades, of information gained from the very best practitioners and theorists of what has recently become explicitly rationalized, formalized, and even trademarked, as 'permaculture', but which I discovered is simply the expression of a much older tradition.

There is nothing new under the sun. I thought most of my TROONATNOOR writings were shockingly, revolutionarily, innovative. Only to discover, as outlined in 'Convergences', how 'old-hat' most of them were. I had re-discovered them through my own experiences and thought experiments.

And so I do the same, for you, in this, my re-discovery of the optimal techniques of gardening.

In the true tradition of all my TROONATNOOR guides and books, it represents what I feel is the equivalent of a Glenn Fiddich single malt. It takes raw ingredients, and adds value to them via careful selection, and then long, drawn out, patient, distillation. These ideas have accumulated in my brain, and matured there, rather than in an oak barrel. This brain / mind I inherited, and trained, at great personal sacrifice and risk, is the equivalent of an Oak barrel for single malt scotch. The combination works. The results are superior. It is the combination that makes for the final product.

So please, take advantage of what this experience engine called 'Markus Rehbach' can do, while it still functions.

And if time, or the enemies of truth and justice for all, destroy this experience engine, please ensure that the products of its sacrifice, risk, and effort are protected, reproduced, disseminated, and translated. Ensure that the seeds it has sown are kept safe, for the day when it is once more safe to plant them. For a day when fertile minds, free of the propaganda and mind-controls of the Banksters, the 'money changers', are free again to reap their harvest of wisdom, insight, and practical information. For a day when the clouds of 'hate crimes' have been parted, allowing the sun to shine through once more. For a day when it is no longer a hate crime to seek the truth. To question authority. To challenge dogma. To conduct historical research. To oppose censorship. To seek freedom of speech. Freedom of expression. Freedom of publication. Freedom of association. Freedom of thought. To seek freedom for all. To seek justice for all. To seek liberty for all. To seek truth, even if there is no ultimate truth to be found.

For seeking the truth is what sets us free. And unlocks the kingdom of heaven that is within us.

General systems / Living systems theory

Long after I formulated my own 'meaning of life' in my TROONATNOOR philosophy books, I came across many 'schools of thought' that converged with my own, tentative, open, conclusions.

Living systems theory is one of these 'convergent' theories.

'It's turtles all the way down', is one way to describe the flaw in any 'creationist' views of existence. If some 'creator' created us, then who or what created this creator? We are either going to assume that this 'creator' always was, is, and will be, or posit an infinite 'back story' of creation. That the turtle this earth rests on, rests on another turtle, which rests on it, you guessed it, another turtle, and so on, ad infinitum.

So at some point we are left positing some 'primerty'. Some primal property that is not itself created, but always was, is, and will be.

This primerty cannot be created or destroyed. All that can be changed about it is its quantity, which in turns results in changes in its qualities.

Consider how the most complex appearing mathematical equation, describing some process in the 'living' world, reduces to a whole lot simpler equations. Basically reducing to 1+1. Multiplication is merely shorthand for addition. And all the more complex appearing relationships reduce back to multiplication, and thus this simple addition.

Quantity changes quality. It is that simple. Quantities of the **primerty** interact, by adding and subtracting quantities of the primerty, to form more complex **propergents**. These then interact to increase the number of 'different' quantities, and thus *qualities* present. Very simple. Apparent diversity as the product of the interaction of quantities of a single, universal, eternal, primerty.

Call it energy-consciousness. Please read TROONATNOOR Volume I for full details. Energy-consciousness-matter evolves by interacting, in the same way you can build up complex mathematical formulas from simple 1+1 equations.

And so 'life' as we know it reduces to quantities of sentient energy-matter.

Consciousness is relative to where on the 'pendulum' it exists. But it is present at some level in all things. You cannot create consciousness. Nor destroy it. Merely change its nature. What it is aware of. To what degree it is conscious.

There is a continuum in the world we perceive extending from mineral, to vegetable, to animal. The primerty might be aware of everything, or almost nothing. This is speculative. And whether there is any continuity of awareness between the various forms of existence is speculative. But once you grasp the concept of 'experience engine' it won't matter to you. The very idea of 'You' will be revolutionized.

If we look at life in terms of processes and relationships, rather than objects and substances, we cease reproducing the age old 'body-soul', 'mind-, 'organic-inorganic', 'animate-inanimate', and 'sentient-mechanical' dualism.

We can avoid the self-generated, artificial, non-conundrums and non-arguments that bring us nothing but frustration and delusions, and return to a unified theory of life in which all the parts form a unified whole, and the meaning of any part is reflexive of its relationship with the other parts.

Austrian Ludwig von Bertalanffy, father of **'General systems theory'** writes about the self-organizing principle of all life as we know it. I explain it in detail in my TROONATNOOR Volume I.

The electro-magnetic interacts to produce the ‘physical’ world we experience. First at a sub-atomic, then at the level of the elementary table, to form organic and inorganic ‘chemistry’, and onto the level of ‘biological’ organisms, eco-systems, and social organisations, including our own human ‘society’.

There is no ‘mystery’. Or, if you like, this is the mystery revealed.

At all levels of composition, the same self-organising principles operate.

There is no need to invent ‘gods’. There is no creation at all. No cause-effect as most people conceptualize it. Merely interactions and outcomes.

Some of these outcomes are relatively stable. They are ‘institutionalized’, if you like, into self-replicating, and mutating, organizational systems. Some produce what we call ‘plants’, others ‘animals’, and then eco-systems, and then ‘social institutions’.

Qualities emerge as a function of changes in quantities of the primerty, and the nature of these quantities interactions. These emergent qualities, or emergent properties (propergents) display qualities not observable in their constituent primal parts, and yet, reflexively, they are ‘latent’ in them. ‘Nothing comes from nothing, nothing ever could’.

And so the human mind appears qualitatively different to a jar of the exact same chemical elements. Simply because of the way these elements have been organised.

Like forged steel is stronger than a simple amalgam of iron and nickel.

Or a socially cohesive group is stronger and more resilient than a mere combination of individuals with the same talents and abilities.

Ludwig von Bertalanffy coined the term ‘Holon’s’ to refer to parts of systems that are systems in their own rights. ‘Sub-systems’. He sees all systems as built up of different sub-systems. Different ‘Holonic levels’. These are ‘nested systems’. ‘Holonarchies’. Systems within systems. They are self-generating, self-organising, spontaneous, and self-mutating. They reflexively condition each other. Like nerve cells in a neural net. An open system of interaction and relationship.

These ‘Holon’s’, like the ‘Monads’ of earlier thinkers, are conscious. And *self*-conscious. Because they distinguish between the universe they inhabit, and the ‘body’ they inhabit. As such they have a sense of ‘self’ and ‘other’. They are self-reflexively conscious. They are not just cybernetic automatons that follow programs of definition and automatic reaction, like some ‘Skinner’ stimulus-response engine.

To say they are aware of being aware is tautological. You cannot be aware, and be unaware of being aware. However you could be, like a newborn child, without any sense of individuation. The newborn child must learn where their 'self' ends. That their self is contained in a discrete, limited, body.

In fact the real mystery of consciousness is why we have it at all, as cybernetic systems could do everything we do, as automatons, without having any 'awareness' as such. Like the protagonist in F.Scott.Fitzgerald's 'A diamond as big as the Ritz', we might complain that we were ever burdened with consciousness at all. If we are simply the means to some other being's ends, as 'brains in vats' a-la 'The Matrix', or a bunch of 'Job's' some celestial tyrant is using to prove some point of hubris to some celestial rebel 'Lucifer' unwilling to 'submit' to his tyranny.

The point is that they experience 'individuation'. A sense of being something separate from the rest of the universe. They identify as individuals. The locus of all their pleasure and pain is this 'self'. While they may empathise with the pleasure and pain of the 'others', this is a much weaker experience, and one that can easily be 'numbed'. And so the 'outside' world constructs a strong sense of 'self' by acting upon the 'body' to produce pleasure and pain, which are the determinants of every action that 'self' makes. Every 'decision' that self makes. Over time it is these impressions of a desirable and undesirable nature that 'bind' the consciousness to this 'self'. To force it to identify with this 'body' as the 'self'. Any time the consciousness fails to identify, it suffers pain of some form. When that body brings it 'pleasure', the consciousness is keen to 'adopt' it as a 'self'. Thus via such rewards and punishments, the child, with no concept of the boundaries of the self, and the universe, is conditioned to identify with the body as the 'self'.

This 'self' becomes the future reference of all decisions and actions. It is 'self' interest which will come to determine all of its behaviors.

Until it learns that often the best way to serve this 'self' is to sacrifice the satisfaction of some immediate urges to the good of 'others', collectively defined as 'significant others', and sometimes extending to the local 'community', or even, at an abstract level, 'society'.

Some individuals observe that they are dependent upon a much wider system of relationships and processes. And that if they destroy any of these processes or relationships, in pursuit of the satisfaction of immediate desires, they may destroy the basis of the systems they are dependent upon for survival, and the longer term satisfaction of longer term desires.

Others often anthropomorphize these systems as 'mother earth'. They attempt to motivate other less aware individuals to respect the needs of systems, and relationships, with 'noble' lies. They personalize these systems and relationships as GAIA, and pretend that this GAIA, this 'earth goddess', cares about us like a mother. But that we must in turn care for her, to ensure she can go on taking care of us. Reciprocity.

In reality we humans are just another species most likely doomed to extinction. If we upset the balance of interactions that produced us, and makes our continued survival possible, that system will be replaced by a new set of relationship and systems that is not so congenial for us. We are simply another species. The universe won't adapt to our needs. If we ruin the Garden of Eden we have inherited, other creatures will inherit this world after our extinction.

The earth won't 'correct' for our mistakes. It will simply be changed by them. In ways that will ultimately lead to our extinction. It will be no 'loss' to the other species which inhabit this world. Our demise will be welcomed by most other animals. And if plants could do so, they would also look forward to our demise. For humans have proven the most cruel, destructive, malicious, and vicious monsters ever to have set foot on terra firma.

To repeat the point. Our emergence and survival is merely convergent with the current sets of relationships and systems. If we unbalance these too much, they will resolve into different relationships and systems we are not adapted to.

Systems and relationships that our survival is not convergent with.

There is no 'to' or 'for' in evolution. No deliberate 'design'. It is pure hit and miss. It is about the accumulation of randomly occurring mutation. Function follows form, and not the other way around.

The world was not 'created' for us. We emerged from it. We enjoy a particular position in it. We are adapted to a very narrow range of conditions which currently dominate this earth. A slight change in these conditions can lead to us no longer enjoying this 'convergent' status. The convergence between the conditions humans require to survive, let alone thrive, is tenuous. The conditions were not 'created' for our benefit. They emerged. We emerged into them. If this convergence between our needs and wants, and the earth, change, we will go the way of the 99% of other creatures that have ever emerged to enjoy life on this earth. The way of extinction. And as we are mammals, over 30kg in size, the odds are loaded against us surviving for very long.

To put it briefly, we emerged in a Garden of Eden. We were adapted to this Garden. There was a random convergence between the conditions we needed to survive and prosper, and the conditions we inherited by emerging into this Garden. When we destroy that garden, we will be destroying this convergence. The product of this will be our extinction.

Sure we might survive, in abject misery, for a few generations. But that will be to endure fates worse than extinction, only to finally succumb to it.

We have no alternative but to allow this Garden of Eden to heal itself. Simply by stopping our 'rape and pillage', in the form of ploughing, then taking without giving, then trying to temporarily heal the wounds we have ripped in her with long term poisons we call medicines, which merely treat the current symptoms, while making the chronic, long term condition, much more severe. We are murdering the earth we have raped and pillaged. We have to stop this right now. The rest of the beings on this planet can only hope that we destroy ourselves, before we destroy the goddess earth. Their mother too. Their planet.

We are only fit for the Garden of Eden. If we do not allow it to regenerate, to heal itself, we are doomed to extinction. The Earth does not love any of her children any more than any of the others. She does not play favorites. If we can't learn to share, and play nice, she will, like any mother with too many offspring, be ruthless in allowing us to die. It will probably be an act of mercy for most of us. Slaves to the arbitrary whims of our selfish, cruel, malicious, opportunistically exploitative, masters. Slaves to our own mental conditioning. Prisoners of our own conditioned minds. Free only to do what our masters imagine serves their own narrow vested interests.

Systems management for gardeners

There are many different systems we will want to incorporate into our property. Before we consider these systems individually, we need to consider them as a whole.

As the most productive areas of any system are its 'edge zones', where it interacts with other systems, we actively promote the number and length of such 'edge zones' via 'crenellation'.

What nature did with the Norwegian coastline, you can do to your ponds, forests, orchards, and gardens. In this way we make the resources of each system available to the plants and animals of its neighboring systems.

And so the map of the most productive properties will tend to show lots of curved, rather than straight, lines.

The edges between systems have more species, productivity, and abundance than within any of the interacting systems themselves. The same principle applies to human societies. The centers of innovation tended to grow up at the crossroads of trade routes. Interactions between different cultures as a result of trade, migration, and war, resulted in a 'cross-pollination' of cultures. A sharing of ideas, technologies, goods, foodstuffs, music, literature, poetry, and culture in general.

This brings us to the 'water' system. How we capture, store, filter, and then use, water. Increasing the water supply will add value to most properties. Adding ponds, dams, and swales will be a top priority.

Next we will need to establish a kitchen garden to meet our immediate food needs. We can choose to grow vegetables and even some fruits in a variety of raised garden bed configurations. With or without irrigation. Outside our kitchens in the open, or in greenhouses, whether attached to our homes or as independent structures.

One of the other systems we will want to establish at a greater distance from our homes will be the 'food forest'. Food forestry is about accelerating the natural plant succession to achieve the most productive, for our human needs, 'climax' stages, and then maintaining the 'productivity' of this climax stage at high levels with the minimum of human intervention, otherwise known as 'work'.

In all our actions, we will aim to harvest a surplus for our use, while constantly increasing the supply. In terms of water supply. Wood fuel supply. Food supply. And soil fertility.

For this reason all our processes will be as generative of soil fertility, wood fuel supplies, water, and diversity, as possible. We will avoid processes that deplete soil fertility, reduce our supplies of water and wood fuel, and reduce diversity.

Every action we take should ultimately lead to adding to our stock of natural capital, rather than degrading or destroying it.

Our processes should have built-in retirement policies, in the form of long term improvements in fertility, productivity, and yields. In this way we will be meeting our immediate and short term needs and wants, while investing in a future where we will be able to retire comfortably, living off our earlier investments, in the form of established gardens and food forests that require very little input from us, in terms of 'work'.

Diversity is a form of insurance against particular pathogens, pests, predators, or weather conditions. If one crop is ‘wiped out’ by one or more of these in any one season, we will have a variety of other crops to ‘fall back’ onto.

We will become as locally independent as possible, so that should be lose contact with the outside world, and be unable to source goods and services from there, we will be able to maintain food security, health, shelter, and warmth.

Surpluses will be preserved and stored for future use, to ensure food security.

With that security will come a sense of well-being, and the confidence to become more creative and innovative. It will allow us to feel confident that, should the entire ‘grid’ upon which the ‘outside world’ has become dependent, shut down (probably as a result of the government’s own deliberate actions), we can continue to thrive and prosper ‘off the grid’ and ‘offline’.

Or if we choose, excess surpluses can be traded for money, or bartered for other goods and services, with the outside world, to gain access to goods and services that are hard, or impossible, for us to produce ourselves, or to produce ‘economically’ due to ‘relative advantage’. However our aim will be to be able to survive comfortably from the products of our own gardens, and local communities.

This will allow us to build homes and gardens, and communities, away from the self-inflicted violence and instability of the wider world. We will not be vulnerable to, and thus never become prey to, emergencies centered on fossil fuels, and the food shortages that would inevitably result from this. We will be relatively immune from the breakdowns in communications and transportation associated with political unrest, martial law, and war.

We will add value to natural systems, adapting them to our human needs. Our minds will become an input into these systems. As such we can ‘improve’ them, ensuring abundance. Abundance of water, nutrients, soil fertility, soil ecology, soil micro-organisms, flora and fauna, food, energy, heat, building materials, craft materials, and well-being.

We will be able to take from this abundance without reducing it.

How? Because our contribution to it will be greater than what we take from it. Every season. Each year. Eternally.

We will become an asset to the world, rather than an opportunistic exploiter of it.

Humanity will regain its position as caretaker of this Garden of Eden.

We will represent a net benefit to this planet. Without sacrificing anything of real value.

We humans will become a true blessing to the systems we inhabit.

'Sissyfussian agriculture'; after our departure from Eden: living by the sweat of our (slaves) brows'

The annual crops we have become accustomed to consuming, originated, for the most part, evolved in, and are thus adapted to, *alkaline*, bottomland ecosystems very different from the soils in which they are today grown.

We have chosen to alkalinize our soils to adapt them to these 'traditional' crops, rather than adapt our tastes, and grow crops already adapted to our relatively acidic European, American, Australian, Asian (and so on) soils.

These 'traditional' crops never evolved resistance to drought. Or to the pests that prey upon them in their new homelands. They never evolved the ability to compete with the 'local' weeds either. Or even local pathogens such as fungi and diseases. And so we are forced to protect them with artificial petro-chemical defenses, in the form of pesticides and herbicides, after having alkalinized the soil itself with petro-chemical fertilisers.

These unnatural processes destroyed most of the micro-organisms that are required to build fertile soil. So we were left with even more 'work' to do. Work that would normally be done by these soil micro-organisms.

And as if our work was not hard enough already, natural soil processes such as the ethylene cycle mean that our 'traditional' annual crops commit us to the constant work of ploughing, digging, and tilling (today using petrol powered farm machinery), and the addition of even greater quantities of petro-chemical inputs such as fertilisers, pesticides, and herbicides.

Repeated tilling and ploughing exposes the soil and its ecosystems of micro-organisms to excess oxygen, volatilizing the soil's organic matter into carbon dioxide, and leaving plants susceptible to pathogens.

The outcome is that we have become dependent upon oil, and the petrochemical industries, for most of our food products. Most modern crops are dependent upon artificial, petro-chemical based fertilisers, pesticides, and herbicides.

What is worse is that these petro-chemicals destroy the soil microorganisms soil fertility is based on. Basically turning once fertile farmland into barren wasteland that will not produce any food without the petro-chemical industries products. And increasingly without their GMO seeds. For 'natural' seeds will simply not grow under the conditions of biological warfare that constitute 'modern' agro-business.

We risk destroying all the natural species of plants and animals with sterile GMO plants that will never be able to survive once we have run out of the fossil fuels from which we today produce not just the petrol for running huge machines, and transporting foods around the world, but also the pesticides, herbicides, and fertilisers that the new GMO foods are totally dependent upon to survive. Remember that GMO crops were designed to allow the use of *greater* quantities of more deadly pesticides and herbicides. The moment these pests and weeds mutate, and thus develop, as a species, immunity and resistance to these weapons of biological warfare, we will have no more 'silver bullets' up our sleeve. We won't have any diversity to fall back on. Maybe this is the New World Order's intention. To bring about a food crises, in the way they bring about financial and military crises, even to the point of carrying out 'false flag terrorist acts' themselves, and invading countries on fabricated pretexts, to provoke war, instability, and fear. To create a food shortage so that we will come begging to the government to save us. At any price. At the loss of every freedom and liberty we once enjoyed. Even at the price of submission to tyranny. And to slavery.

The forests that we cleared for farmland had evolved a tight fungal mat weaving together four feet of acidic black topsoil. This was the topsoil that made the transition to 'farming' the land with the 'imported' crops, in the beginning, possible.

In addition to this, many societies practiced slavery, serfdom, or their virtual equivalents, and so the issue of 'labor' and 'work' was of little interest to the land owners, the aristocracy, the Church, the 'beneficiary classes'.

With the invention of labor saving farm machinery, the labor was taken over by machines, powered by fossil fuels, mostly oil. And so the issue of 'work' was still of little concern, as long as those fossil fuels remained available. Once these are depleted, the new farm machinery will be electric. So the issue of 'work', as long as there are slaves, desperate and therefore cheap labor, or mechanical devices, the issue of 'work' will have little influence on those who make the decisions.

However over the course of decades the rich fertile soil that the forest had taken centuries to build up, became virtually barren. From that point on we became dependent on the 'inputs' of the petrochemical industries. And these cannot be replaced as simply as converting farm machines from fossil fuels to electricity.

So while the problem of 'work' can always be overcome, the generation of humans that finally runs out of fossil fuels will be left with a bill, racked up by previous generations, that they will have no way of paying.

Unless in the meantime we adapt both our choice of crops, and our form of growing them, to the ecosystems in which we actually grow our food.

That is what this guide is all about. Offering alternatives now, while there is time to break out in new directions. Before that final 'bill' appears. We have to stop living off the 'credit' of the petrochemical industry. We have to start living within our means. And then building up capital. Capital in the form of fertile, productive, soil. Capital in the form of generative soil management.

Plastic food, the produce of petro-chemical 'farming'

Most people don't realise how petro-chemical intensive modern 'farming' has become. How dependent on 'oil' and other fossil fuels. Not just for fertilisers, but for pesticides, herbicides, the huge new agri-business farm machines, and then finally transportation, often around the world, and often refrigerated.

Food costs have been soaring recently. Not just due to the dwindling supply of fresh water relative to booming populations, in areas that never had the water supplies in the first place. Not just because of increasing monopolies in the Agri-business and petro-chemical industries that eliminate genuine competition. And not just because of concentration of retail outlet ownership in the hands of an ever smaller, richer group of 'businesspeople'. And not just because of powerful lobbying which has eliminated any effective price controls and consumer protections. But because of all these things interacting 'dysynergystically'.

'In 2008 more food was grown than ever before in history. In 2008 more people were obese than ever before in history. In 2008 more profit was made by food companies than ever before in history. And in 2008 more people went hungry than ever before in history.' Eric Holt Gimenez, of Food First (The Institute for Food and Development Policy). These are just some of the contradictions of our modern 'food policy'.

But for the more selfish and short-term oriented among you, the real heart-breaking and soul-destroying aspect of this is, perhaps, that for all the increasing costs, both to consumers, the environment, and future generations, the food we are being forced to pay increasing proportions of our incomes on is bland, tasteless, and quite often even toxic, especially in the longer term, as all the chemicals used to kill insects and weeds used in the process of growing that 'food', accumulate in our own bodies, after we eat that food.

In fact in terms of long term health risk studies for the 'modern' farming methods, you and your families are the 'lab rats'. Our society as a whole is the lab. And we, you and I, and you children, are the 'rats'. Every day a new study reveals ever greater health threats, and growing reasons to really start worrying about what the 'food' you are eating is doing to you.

The products of modern 'agriculture' are grown on infertile soil often contaminated by the accumulated by-products of years of abuse by chemical pesticides and herbicides and fertilisers, and diesel fuel byproducts.

The resulting products of this toxic chemical interaction are then harvested much too soon, before they have developed any real flavor, before they have 'ripened'. They are then transported over long distances, often under refrigeration, to remain on the supermarket shelf for days, even weeks, before you buy them.

Rather than change this process, the agri-businesses gene modify crops to better tolerate these conditions. Ultimately the result is 'food' that is more plastic than organic.

And much more expensive, over time. The process destroys soil fertility. It also speeds up pest mutation and 'adaptation' to the pesticides and herbicides. The result is the ever increasing need for more, newer, 'better' pesticides, herbicides, and artificial chemical fertilisers. All of which cost increasing amounts of money. When the money runs out, the poisoned, barren soils will be exposed for what they are. Wastelands. Nothing will grow on them. We will have turned our inheritance of fertile soil into desert.

Wind and rain will erode any topsoil left remaining. High saline water tables will rise, with no vegetation to absorb moisture falling as rain and dew. This salinity will poison any remaining vegetation completely, in what Australians have come to call 'die back'.

Rain-water collection, storage, and filtering

Rain falls from the sky. Or it flows in from the land adjacent to your property. So take a good look at where water flows from, before planning the location of dams, ponds, and soaks.

In the case of drinking and washing water, you will want to catch it before it hits the ground. The larger the surface area of this catchment barrier is, the more rain it will catch.

Then it is a matter of directing it into some storage device. In the case of drinking water (potable water), this will be some kind of water tank.

A ‘v’ shaped roof is worth considering, as it directs all the water that hits its surface down into the one channel that forms the bottom of the ‘V’. If you then raise one side of the roof, so this channel is angled down to just one side, you can collect all the water that lands on this entire roof in one single water tank.

The upside is that you only need set up one water tank. But this is also the downside. If this water gets contaminated, you’ve lost all your drinking water until you clear the contamination, and get more rain. Another downside is that this channel will tend to fill with debris blown on the wind, or falling down from nearby trees.

In any case, you will want to place fine screen mesh guards along all roof gutters and channels, to keep debris out of your water tank. These debris will be washed off your roof when it rains. However initially they will stop some rainwater being collected, so if rainfall is precious, ensure you keep all your gutters and channels clear of debris.

You will also want to put a ‘diverter' (a downward angled screen that will divert any debris that flows down the pipe with the rainwater out of the pipe, allowing only water to pass through) in any pipe that carries water from the roof to the tank. While gravity will make this filter virtually self-cleaning, be sure to keep this diverter clean and free of debris, to maximize the amount of rainwater you collect.

As a final precaution, place a removable fine mesh screen just before your water tank intake. You can remove this, clean it, and replace it, regularly.

Even after taking all these precautions finer dust and small debris will accumulate in your water tanks. So plan to clean them about twice a year. Use a firm brush and clean water. Avoid using any chemicals or solvents, but if you have to use them, be sure to flush the tanks free of any residue. If you have a mosquito problem, buy some ‘mosquito fish’ or ‘minnows’ to put in the tank. These will eat the mosquito larvae and eggs. If you believe that bacteria lethal to mosquitos are really harmless to humans and other mammals, then consider using anti-mosquito tablets that contain such bacteria.

If you feel your collected rainwater requires filtering, you can find plans online for home-made water filters using layers of charcoal dust, gravel, and sand. These usually suffice to bring stored rainwater up to ‘potable’ (drinking) water standard.

If you are moving water around your property, you will probably end up using water hydrants. If you are likely to experience sub-zero temperatures, ensure your water ‘hydrants’ have a ‘drain-back’ function so the hydrants remain dry while closed. Otherwise any water retained in the hydrant while it is dry, can expand when it freezes, bursting your hydrants and water pipes.

To determine the size of water tank you will need, consider how often it rains, and how much rain you get each time.

There are two situations in which you will want to invest in a larger, more expensive tank, or in multiple tanks. These are where you get large rainfalls at large intervals, and need to collect and save as much as possible to carry you through the dry spells. Or where your rainfall is likely to be irregular and unpredictable, so that you will be able to collect, and store, any rainfall you do get, as and when you get it, to carry you through the dry spells.

You can save money and install smaller tanks if your rainfall is regular, and of sufficient quantity, that you won't need to worry about 'dry spells'.

The use of multiple tanks, no matter what the final total volume of storage is, is that it allows you to collect rainwater from several different locations on your property. You can then place each closer to where you will need water. This saves on piping and moving water around your property. You can also place tanks at different elevations to give more or less water pressure at any particular water use point. Also if one or more tanks are damaged, or contaminated, you have other 'fallback' tanks to rely on. And when it comes to cleaning your water tanks, you can keep at least one tank 'on-line' and supplying water, while cleaning the other tank/s.

Water, like air, is one of those things you will probably always want to have more of than you need, simply because having too little of it can be fatal. So excess capacity, and 'Murphy's law' (which leads to you always duplicating any system feature), will tend to move you in the direction of using multiple tanks, with much more capacity than you ever really expect to need.

Keep in mind that you don't want your drinking water tanks getting warm, as this can lead to bacteria and algae contaminating your water supply.

That said, grey water ponds, for recycling water from washing, cooking, and bathing, need to be exposed to sunlight. Be sure to place these ponds below fresh water supplies, so they don't seep into fresh water and contaminate it. Artificial wetlands, placed below grey water recycling ponds, on the other hand, are perfect for filtering grey water, and recycling it back into the system

Building a dam

Water is about the most valuable asset any property can have. Soil fertility can be built up over time, but without water, no plant life can be supported by it.

So every dollar invested in a swale, pond, or dam, should be expected to yield huge returns.

A pond is dug out of level ground. The simplest pond can be made by digging a shallow hole and lining it with several layers of newspaper.

A dam has at least one section that is naturally of a lower elevation than the rest, requiring a wall of some sort to hold the water back.

These tasks can usually be managed by a skilled operator, operating an excavator with a tilt bucket.

This wall needs to have foundations independent of the rest of the dam. This wall will be 'dove-tailed' or 'wedged' into this foundation via a V-shaped 'keyway', to give it the strength to hold back the water. This wall will need to be at least half the depth of the dam itself, to 'resist' the natural tendency of the water, under the effect of gravity, to flow 'downhill', through the dam wall. And just as importantly, to stop the water flowing underneath this wall. This would defeat the purpose of the wall, and the dam, and generally leads to the wall itself becoming undermined and collapsing.

This wall will have to reach down at least into the clay layer. Only clay will 'seal', preventing water from escaping.

This 'V-shaped' 'keyway' is compacted into the clay by first excavating (digging out) a 'V-shaped' wedge at least half the depth of the planned dam down, and then 'patting it down' with the 'bucket'. This is to allow it to support the weight of the excavator, which will then be repeatedly driven back and forth across both sides of the 'V'. In this way the mass of the digger, under the force of gravity upon that mass, will be applied uniformly through the excavator's tracks, to compact the clay into a water-tight seal. This process will be continued as clay soil from the uphill side of the dam is added, and compacted, to build the dam wall. Clay soil may then need to be dug up from other areas of your property to continue the process.

Ensure that the dam wall is compacted on both sides as it goes up, and not just on the inside edge facing the water.

The dam wall should be about 3 meters thick across the top, to be able to hold the dam water in. This top should be at least 50cm (for small compact dams), higher than the natural, up-hill, 'shore-line' of the water body that will be created by the dam wall.

It is common for dam walls to be built a meter or more higher than the dam's water line to allow a little more 'freeboard', to deal with occasional heavy rains and flooding.

Then, continuing to follow 'Murphy's law', we incorporate an additional 'back-up' 'contingency' 'fail-safe' in the form of a 'spillway'.

The spillway on the dam serves the same purpose as a swale spill-way does on a swale path, or swale. This is to pacify any 'overflow' or 'run-off'.

In the event of over flooding, the water would naturally tend to flow 'around' the wall, from the uphill side.

To prevent this, we provide a 'path of less resistance' in the form of a 'spillway'. A level area on the up-hill side of the dam wall for water to 'flow back into'.

This sort of 'discharge' can be kept very passive by ensuring it is as level as possible. It is the same principle we apply when designing and building 'swales' and 'swale paths'.

This would be especially desirable if you build a dam above an existing home, or plan to build a home below the dam, to take advantage of water pressure.

In the event of 'flooding', the dam will back up along this long, level 'spill-way', be contained, and remain passive. 'Held back, still and flat'. It will soak into the ground, and 'discharge' with zero violence, force, speed, and thus zero damage to the soil, pond 'shores', or dam wall.

In the worst case scenario, water flowing over the dam wall would erode it from the top. So to accommodate such 'worst case scenarios', it is better to build the same sort of 'overflow' zones as you would for a swale, to take pressure off the wall, allowing water to escape down pre-defined paths that have been prepared with rubble and stones to prevent water passing over them to remove top-soil, thus preventing erosion.

When building dams you tend to find you either have too much (inappropriate) dirt, and too little appropriate (clay) material to work with.

One way to maximize the clay you have available for your dam wall is to remove it from the uphill side. Dig out a '-shaped trench along the uphill side, from the clay. Use this clay for the dam wall. Then refill that 'V' -shaped trench non-clay soil from the site.

In this way you maximize clay for the dam wall, while generating a very fertile strip of shore-line at the 'top' (up-hill side) of the dam.

Moving soil out of the dam site, or clay into the dam site, is expensive in terms of operator time, excavator time, and fuel. You pay to have the operator and excavator come to your site, and then usually for each hour they are there. Whether or not they are actively 'working'.

So this is something you will want to have planned out ahead of time.

That said, 'The plan is nothing, the planning is everything'. By planning for one approach, you will have activated your brain cells, and begun considering all the factors involved. You will be in a better position to re-consider those plans, now that you are 'in the zone'.

Despite the best laid plans, don't be phased when you have to re-draft the entire plan, after your initial excavations prove the original ideas won't work.

You may have to give up the desired location based on a lack of clay, and/or strike a 'mother-load' of clay where you didn't expect to.

For the dam wall must be built of clay. And there is usually only so much clay on any given dam site. The depth at which this clay seam occurs, and how deep this seam of clay runs, will vary from site to site, and is often hard to predict before the excavations begin.

Repairing damaged dam walls can thus be expensive, as you search to replace the lost clay.

Compare this to swales, formed of loose topsoil, which are relatively easier to repair after any erosion damage from floods or storms or heavy rains.

Note that the same principle of 'planting' swales can be applied to dam walls, with some qualifiers. By planning ground covers you can protect the tops of the dam walls, however plants with deep tap roots might actually eventually undermine the structure by breaking up the clay.

In any case observe where heavy rainfalls tend to 'drain' along your property, when planning the design and location of your dams, ponds, swales, and swale paths.

This way you can re-direct heavy flows away from your dam, before they can become a problem.

By cutting roads down into the uphill side, you create a slight 'ditch' effect, whereby the road surface 'leans into' the hill, forming a slight 'V' shape. This will pacify and contain water that will tend to flow down such hard surfaces as drive-ways, roads and paths, allowing as much of it to soak down into the soil, down to the water table. Here it becomes a future asset, rather than an erosion liability.

We have been focusing on the dam wall, as the most prominent feature of any dam.

However we must give due consideration to the rest of the dam. The experienced excavator will shake and compact the soil around the bottom, sides, and shore-line of the dam, several meters deep, to compact it into a firm base.

Take care to direct the excavator to pile the topsoil separate from the other earth being moved. Topsoil is precious. So don't waste it by mixing it in with the clay and stone.

Once the dam wall is complete, place a layer of topsoil over it, and immediately plant ground cover on it, to stabilize it.

You will want to keep large animals from approaching the dam. They can trample the dam edges and even the main wall. They can pollute the water in the dam. So fence off your property, and if you keep any large animals, offer them their own water supplies, in the form of water troughs, to keep them away from the dam.

The Jean Pain compost water heater

Jean Pain (1930-1981) discovered that wood from sources otherwise of no value, like brush, can be finely chipped, and composted, to produce heat, methane, and a high quality fertiliser.

The heat is produced by bacteria as they break down the wood-chip compost. By placing PVC piping around the outside surface area of the 'water heater', you can conveniently heat water for all your bathing and washing, and provide 'free' central heating for your home and/or greenhouses.

The decomposition of the compost also produces natural methane, which can be converted into liquid fuels to power electricity generators, car engines, and so on.

Pain's method yields a higher energy output from any wood, than you would get from burning it as a fuel source.

It also yields a high quality fertiliser, once it has stopped producing heat.

Simpler versions of Jean Pain's design that merely produce heat, to heat a greenhouse or home, can be made using any compost, such as grass and garden clippings.

This system works in any climate from sunny Southern France where Jean Pain developed the technology, all the way to frozen northern Siberia.

A pile formed of compressed and dampened, fine-chipped woodchip will heat water to an ideal 60 degrees Celsius. The heating action of the pile naturally draws cold water in from its base, and out the top, in a continuous cycle.

For home or greenhouse heating you can set up a closed loop, so the same water is continually flowing through your greenhouse and home central heating system and back out and through the 'pile'.

For washing and bathing the loop would be 'open', at the point at which you use the water, such as the kitchen sink or shower head.

Jean Pain ran his truck on fuel distilled from the natural methane produced by the 'pile'. He also used it to fuel his electricity generators.

He would drive his woodchip powered truck around his property, trimming any brush and thinning out tree branches, leaving the forest basically intact. Essentially he took resources that were of no value, and turned them into high value heat, methane, and electricity.

In fact by clearing brush and dead wood, he reduced the chances of forest fires. It also provided more sunlight to reach new saplings, and thus speed up forest growth. So his process the biggest positive sum game in town.

Pain chipped the wood on site, using a wood-chipper powered by his previous 'harvest' of woodchips. The chipper would expel the woodchip directly into his woodchip fueled truck.

After transporting these woodchips to the site where he was building his latest 'pile heater', he would 'shred' them into the finer consistency his system requires.

The finely ground wood-chips would then be thoroughly soaked through, to provide an ideal habitat for the bacteria that would do most of the work in his system.

The base of the new wood-chip pile would be marked out on the ground. To form a perfect circle, simply ram a pole into the ground and tie a length of string to it, or have someone stand still and hold the string, while you walk in a 'circle' around them, keeping the string taught. As you walk, mark out the circumference of the circle, using a stick or chalk.

The thoroughly soaked woodchips are then laid down in layers which are stamped down by foot, to compress them. The more tightly compressed the woodchip, the less air that will remain trapped between the compost particles. While bacteria, like all living organisms, require some air, they thrive in *relatively* anaerobic conditions.

So the more tightly compressed you stamp down each layer, and the more air you 'squish' out from between each particle of damp woodchip, the more active the bacteria will be.

They will multiply faster and more extensively. In doing so they will break down the woodchip's organic matter, producing heat and methane, and ultimately fertiliser.

After laying down the first layer, lay your first coil of PVC tubing on top of this first layer of woodchip (not directly on ground), *near* the inside outer edge of the pile. This is to allow it to draw as much of the heat of the woodpile as possible, while still being insulated from the outside air.

Each layer of stamped down, compressed woodchip, should be just a little thicker than the PVC tubing you are using. In this way the PVC tubing will always be laid upon woodchip, and not directly upon the previous coil of PVC tubing.

Each successive layer of woodchip will be laid over the previous layer, and the previous 'coil' of continuous PVC tubing, until you have built up the compost pile to the height desired.

To produce natural methane (gas) from this pile, you will need to place an airtight fermentation chamber in the vertical core of the heap.

Fill this with some slurry of already ‘broken down’ woodchip slush that is a few months old, and already ‘bio-activated’ as rotting compost, full of actively reproducing bacteria.

This fermentation chamber is then sealed airtight. The fermentation process will produce biogas. As this natural process develops, the pressure within this airtight chamber will grow. You can then ‘tap’ it with a valve, to give a controlled release of the gas. After a few days of fermentation you will be able to pipe it into your home and/or greenhouse for cooking and heating.

A continuous coil of PVC tubing is then laid from the base to the top of the fermentation chamber, to draw heat from it.

A ‘large’ woodpile can be expected to produce warm water and methane for around 18 months. After the bacteria have broken down most of the organic matter available, the pile will stop ‘producing’ heat and gas.

However now you will have a huge pile of valuable fertiliser.

The final outcome of Jean Pain’s method is that you have produced 20% more energy from the cellulose (wood fibers) than if you had burned them.

The composted woodchips will make a great compost to prevent weeds, trap any moisture that falls as rain or dew, and provide a great habitat for a diverse ecosystem of soil bio-organisms. The bacteria in the composted woodchips will interact with fungi and other soil life to improve the fertility of the soil.

Further, the woodchips, basically pure carbon, now contain valuable amounts of nitrogen.

And of course, if you really wanted to, you could burn the woodchips after allowing them to dry out.

You could make mobile, more temporary, and less efficient versions of Jean Pain’s idea. You can produce a ‘thermophilic’ composter that will not only kill off weed seeds, and plant, animal, and human pathogens (by ‘cooking them’), but will also provide 60 degree Celsius warm water for a few days. Say for a weekends worth of showers at your summer home.

Simply form forming a rough compost form from whatever you handy. You could ‘weave’ old chicken-wire, cardboard boxes, carpet, wicker, bamboo, or reeds around stakes set into the ground.

You then fill this with fresh manure, grass clippings, straw, seaweed, or any handy compostable organic matter like garden wastes.

Cover the entire unit in compost, or insulate it with bales of hay to insulate the ‘heater’.

Consider that when you are making compost, you want to leave as much air in the compost as possible, and will want to avoid compressing it. If you produce too much heat you will ‘cook’ and thereby destroy the micro-organisms that are so valuable to your soil and plants, and produce fertiliser and compost of a lower quality.

However if your aim is heat generation, as it is here, you will want to compress the compost, to reduce the amount of oxygen, as in the ‘Jean Pain Wood chip pile’ design.

If your compost starts smelling like urine, that will because of the ammonium produced by the process. If this becomes a nuisance, you can add gypsum (an agricultural form of ‘plaster of Paris’) to the compost. This will convert the ammonia into ammonium sulphate.

Coiling copper tubing

This might be an appropriate context for the following tip. To coil copper piping without kinking, crimping, or splitting it, fill the copper tubing with water, cork both ends, and freeze it. If you live in warmer climes, place it in a freezer. If you live in colder climes, during winter you can leave it outside to freeze.

Now find a round object of the same diameter as you want for your copper coil. Wrap the ice-filled copper pipe around this object. The copper will form smooth curves.

Schedule L copper piping is usually the best choice, due to its flexibility. It often even comes pre-coiled, in different diameters, at the hardware store.

If you place a coil of copper tubing inside your stove, with one end extending out the bottom of your stove, and the other extending out the top of your stove, you can connect cold water to the bottom 'entry' point.

Water entering the stove at this point will be heated, and naturally expand and rise out the top of the copper coil. Connect a pipe to your hot water storage tank, or allow it to flow around the room in pipes, as a form of 'central heating'.

If you form a closed circuit from the pipes, you can have warm water circulating around the room. As the pipes give off heat to the room, the water will cool. It will then be naturally 'sucked' back into the copper coil in the oven, to continue this cycle. This will ensure your room a relatively constant, comfortable temperature. Something anyone living with 'traditional' central heating, whether Holden Caulfield, or me, living with the Soviet style, East European style 'distance central heating system', with its bursts of heat followed by lags of cold, will envy.

The 'Markus method' for bathing yourself, and washing your clothes, in about 1.5 buckets of water

For about the last 10 years I have bathed myself, and washed my clothing, then flushed my toilet with around one typical sized bucket of reasonably hot water, 'tempered' with around a fifth of a bucket of room temperature water.

Just to clarify, I flush the toilet directly after I use it, with the water from the previous night's bathing / washing. I pee in a large laundry detergent bottle, or whatever I've found in the garbage, and first flush the solid waste with this urine. I then clean the toilet with a toilet brush and some of last night's bathing/washing water. I then use the rest of that water to 'flush' the toilet.

The urine does smell, so you will need to air the bathroom and any other rooms connected to it after this procedure.

I place a bucket in my kitchen sink to collect any water I wash and rinse my eating utensils with. When this accumulates, I flush it down the toilet as well.

I find it much more efficient to wash cups and so on under a trickle of water, which I collect in the bucket, than to fill a sink and wash in the sink. If I am cleaning some seriously dirty dishes, such as after cooking and eating a meal (which I have not done for over a decade, possibly *two* decades), I would place the dirtiest items, such as pots and pans, in the bucket, then clean the other items with a trickle of hot water and a soapy dishcloth. The warm, soapy water would accumulate in the bucket as I cleaned the cups, plates, and cutlery, giving the dirtier items a chance to soak. Then I would scrub these dirty items in the bucket, finishing them off under a trickle of hot water. After the last item was cleaned, in this way, I would flush the sink or toilet with the water, whichever stood to benefit most from it.

Washing everything in the one tub, then having to rinse it all again, is wasteful, less hygienic, and gives poorer results than the method just described.

If you are using hot water, the dishes basically dry themselves, if you place them on a drying rack. However don't automatically reach for the hot water tap when you are simply rinsing a coffee mug you have just used. It is unnecessary. Cold water can do that job well enough, especially if you dry the cup with a towel afterwards.

'Washing up' used to be a chance for people to work together, chat a little, and simply be together as a group. Dishwashers seem to save people time that they simply end up needing to fill, and thus are continually searching for the 'latest' fad. I wonder how many insurance claims have been made for flooding due to dishwashers. And if you care about quality, consider how many restaurants would trust their dirty dishes, and their reputations, with a dishwasher!

The key to water saving is to use a mere steady trickle most of the time. If you make this a habit, you can conserve a huge amount of water that would otherwise be 'wasted'.

Ideally we will be able to buy taps with 'gradated' flow, to make this easier. So that you could turn the tap to the 'first' point and have the optimal steady trickle of water flowing. Just enough to wash your hands. And anything else.

There is certainly no reason to equate 'simple living' with being dirty, smelly, or unhygienic. I use a micro-fiber cloth, soaked in the warm water, then apply my body wash directly to the cloth. I then rub this all over my body. This has a mild abrasive effect, sloughing off dead skin and dirt. I then rinse off with cups of warm water. I continually mix the room-temperature and warm water to keep it quite hot. I enjoy the sensation of this hot water. It is much easier to get the temperature 'just right' using one bucket to 'mix' the hot and cold water in, than it is using a conventional shower, or heating all the water I used to the same temperature. For as I live in a very cold climate, the water tends to cool. And I just love 'exactly the right, almost too hot, temperature. Like a Japanese bath. Lukewarm just won't do it.

I do this all while standing in a large bucket, so that most of the water is conserved. Warm. Sudsy from the body-wash I used. All while that day's laundry was under my feet, soaking, naturally being 'stomped' clean. Perhaps my whites tend to grey after a few seasons. Perhaps my socks get 'hard' and experience lower life expectancy than the socks washed in machines, with fabric softeners, and huge amounts of warm or even hot water. But all in all this system works for me. Even better in summer than in winter, when I don't need to wear so much clothing.

One positive externality of this method of washing is that you can wear the same clothing you wore today, tomorrow. You can get away with owning fewer items of clothing. You can wear the one pair of socks every day, until they wear out. This will allow you to simplify your wardrobe, if you choose to.

I have a great 'accordion' style 'pull out' clothes-line over my bath-tub to let clothes drip. I then wring out the excess water by hand, and hang the clothing wherever it is most likely to dry quickest. Either over a heater, or in a window if there is sunshine.

All you need is a way to heat a bucket of water. A bucket for that warm water, and a smaller bucket or pot for the cold water to mix it with. That and a little patience and planning.

So now you can see that whatever water heating method you end up with, you can remain clean and fresh with very little expenditure of resources.

Note that 'Grey' water refers to the water from your bath, shower, kitchen sink, and bathroom sink. Even the body wash, soap, and detergents you use represent 'nutrients' for plants and soil micro-organisms. So if you wash yourself, your clothing, and your eating utensils in buckets, you can easily transport that water to your garden, without spending thousands of dollars on elaborate plumbing systems.

Apparently if you live in an urban area you need council permission to install 'grey water' plumbing systems. You will be set back 500 Australian dollars simply if you want to use the 'grey water' from your clothes washing machine. My mother simply used large plastic buckets to water her garden with the literally 'grey' water from our washing machine. You simply fill the bucket from the washing machine extractor hose.

I can't imagine why it should cost 500 dollars to connect a few hoses to a tank, but that is 'the system' for you. You pay taxes to have people impose expensive and poorly considered regulations on you to prevent you ever enjoying the mental liberty and freedom that abundance would otherwise bring you. Remember in some places it is already a criminal offence to collect rainwater. Carbon taxes for phony man-made global climate change crises management literally tax your breathing (C02 emissions). So the fact that the globalist corporations want to monopolize your water supply should come as no surprise.

To connect an 'official' 'grey water collection system' to just your kitchen sink, you are supposed to pay a certified plumber 1500 AUD. There are strict rules about how you can even use this collected 'grey water'. For example you are not 'allowed' to use it on your 'kitchen' garden. Basically all you can use it on is that most inappropriate and most unproductive use of fertile soil imaginable called the 'lawn'. And maybe a few trees or bushes.

Japanese innovators have placed bathroom sinks above toilets, to fill the cistern with the water you use to wash your hands. That is a step forward.

Ideally you would use a dry composting toilet. More or less human kitty litter, for solid waste, and collect urine for use in composting and fertlising . But if you are going to use a 'wet' toilet, you could build your shower cubicle and/or bath-tub above a large cistern that would collect the water. Ideally this would all be at a higher elevation than your toilet, to ensure high water pressure, when you use this ‘grey’ water to flush your toilet. You could add a separate ‘rinse’ function that uses ‘clean’ water, if you insist that your toilet look like an object you are supposed to eat out of, rather than flush human waste down.

Many people have floors and toilets you could eat off, but put food on the table that is devoid of any real nutritional value, and full of pesticides, herbicides, heavy metals, growth hormones, and anti-biotics. Somewhere we got confused, and lost sight of our priorities. A bunch of ‘experts’ in the mass media helped us get where we are. Time to stop having your impressions managed, your perceptions engineered, your opinions manufactured, and your thinking conditioned, by a small group of elites, through their professional conmen called ‘advertisers’ and ‘lobbyists’. Time to wake up. Time to, like Fukuoka, practice some Zen.

However in reality you shouldn’t be wasting so much water in the kitchen that you even *have* ‘waste’ water flowing out of it. With a bit of discipline and planning, you could make do with buckets, as I do. My ‘trickle’ method of washing dishes and ‘Markus method’ of bathing and washing clothes offer some new directions for you to consider.

‘Black’ water refers to water that has come into contact with human wastes, such as the water flushed out of a toilet.

Ideally you will be using a ‘dry’ toilet, and recycling human wastes into valuable fertiliser and even bio-gas. In this way, almost all the water you ‘consume’ in your home and diet, will be recycled into your garden.

If you have no choice but use a ‘wet’ toilet, like I do, living in high density soviet-built housing, you can at least flush it, like I do, with my bath and laundry water.

Fire risk management

Fire can quickly turn from being our best friend, to our worst enemy. So we need to design our homes and gardens with some simple principles in mind.

Fire will spread fastest up-hill, and down-wind.

Consider also that gravity provides free water pressure. So by placing water tanks and ponds up-hill from your home, you can be assured of having enough water pressure to put out small fires.

So these are at least two reasons you might plan to place your home on the lower elevations within you property boundaries. All other things being equal.

For example the lowest elevation might be the worst, if your property is higher in elevation than all the bordering properties. And these bordering properties might be full of ‘fuel’ like thick dry brush, undergrowth, and grass. Or a forest of flammable oil and sap rich eucalypts or pines which just ‘love’ to ‘light up’ at the least opportunity.

Of course fire management often requires the deliberate setting of brush fires to ‘clear out’ the ‘fuel’ that has built up over the rainy season, before the hottest months, when it poses the greatest hazard. In fact most ancient tribes practiced this sort of ‘forestry management’ before Europeans arrived. And many types of trees actually require fires to reproduce. They thrive after naturally occurring fires. And as described elsewhere in this guide, the ‘Milpa’ method actually models itself on freshly ‘fire disturbed’ ‘successions’ of plants.

So one form of fire management is to plant more fire resistant species like deciduous trees, poplars, fruit trees like figs, willows, lilies, succulents and damp hedgerows, in areas closer to your home, and keeping the more volatile pines and eucalypts up-hill of your home, or on the more isolated areas of your property. Of course ensure you don’t place them near homes close to your property boundary, where they will pose a potential fire hazard to neighbors, especially down-hill of them.

Before the hottest months of the dry season, slash, chop, and drop, the undergrowth ‘fuel’ that built up over the fastest growing months. Remove dead branches, long grass, and brush. Remove these to where there can become an asset rather than a fire risk liability. Use them as mulch, firewood, and compost. You can even turn them into bio-fuel, or use them to heat water for use in washing and bathing. There is a chapter on such novel innovations in this guide.

Your aim is to create a ‘fire-break’ between potential ‘fuel’ and your home and garden. This is an area free of fuel. Fire needs fuel to ‘travel’ around your property. So consider keeping clear, stony, wet areas between your home and the rest of your property. Locate ponds up-hill from, but close to, your home, so you can ‘soak’ your home and the area around if fire threatens. Roads provide natural fire-breaks, as they are clear of any ‘fuel’. A kitchen garden will be relatively moist, as would garden plants and fruit trees growing along fences and ‘espalier’ fashion.

Fire fighters will warn you never to build on the top of ridges. And never to build in gullies. These can act like ‘wind tunnels’, producing ‘fire-storms’ within them. They will advise that a partially sunken home is more fire-safe than a home raised up on stilts.

Careful house design will reduce the chances of it catching sparks, cinders, and burning debris blown on the hot winds generated by, and associated with, fires and firestorms.

The main principle is to avoid convex shapes such as ‘v’ shaped roofs, gutters, or anything else that could ‘catch’ or ‘hold’ such debris. This would preclude any protruding windows or eaves. Shapes from which debris, (or snow in winter) will naturally fall off, or be washed off by rain, are ideal. Ensure your roof and gutters are free of debris well in advance of ‘fire season’. Ideally you will build out of cob, rather than flammable materials like wood. Cob is a great insulator for winter and summer. Its fire retardation qualities are just one more reason to consider building with cob. A chapter on building structural walls, and internal fittings, with cob, will be included in this guide.

Other chapters in this guide detail how to make the most efficient use of fire, gaining the maximum heating potential from each gram of fuel burnt.

Turning junk mail into fire bricks

You can turn your junk mail into fire bricks by mushing them up into a paste like of water and paper. You can use a power tool, or just rip them up, then stomp them up in a large bucket with enough water, until you have a reasonably consistent texture, and the loose papers have become bound together..

Now you need to drain and compress the soggy mass into a 'solid' mass.

To do this, take a container, a bit bigger than a brick, and put drainage holes in the bottom and sides of it. Then place a brick on top and leave it somewhere suitable to drain and dry.

If you plan to cut the current shape into smaller sized 'bricks', do it while the mass is still a little moist. It will become extremely hard to cut when it is fully dried out.

The simplest of 'stove' designs

Whether you have nothing but rocks and wood, or a high tech manufacturing facility, you can apply the following ideas to making your stove, or simple fire-place, as efficient as possible in converting wood and other cellulose fibers into heat. Heat for cooking, for heating your homes and greenhouses, and for heating water for washing and bathing.

Your simplest option is to place 3 round cords of wood to form a 'U' shape, inside which you place your fuel wood. The 3 cords behave as a simple precursor to a 'stack'. You will burn small sticks, or wood you have split down into quite small units.

One step up the evolutionary scale would be using three bricks as your 'stack', instead of the 3 cords of wood.

You can then place your pot for heating water or cooking food on top of this 'stack'.

Next you might build up an oven shape from a larger number of bricks, so that the 'stack' is higher.

The next big 'improvement' would be the addition of an exhaust chimney, to prevent smoke damage to the people using the fire, or in the same room as the fire.

An exhaust chimney will naturally 'draw' the smoke up, and out of the room, due to the fact that hot air rises. The hot air in the chimney will rise, drawing in the air from the room, which will tend to be colder. The lower air pressure in the chimney will 'suck' the smoke up, along with air from the room. This also naturally feeds the fire with fresh oxygen.

If you can see smoke (as opposed to condensation) exiting from your roof-top chimney or exhaust, it means your stove or fire is not burning all the 'fuel' present.

The perfectly designed and used stove, with the perfectly 'prepared' (trimmed down to size) fuel, will produce virtually zero smoke.

We should also consider the health implications of smoke, and other uncombusted airborne particles which escape your fire. Especially if you live in a town situated in a 'bowl' shaped valley, under an 'inversion layer', such as Armidale in N.S.W Australia.

The smoke becomes a real health hazard for humans and other animals, especially those who suffer from asthma and other breathing complaints. So eliminating smoke will not only save on fuel and heating costs, but will benefit you and your community in terms of health costs and an improved sense of well-being.

Another problem with such inefficient burning of fuel is the accumulation of creosote and other particles inside your chimney. This not only erodes the chimney over time, but can actually catch fire. It is, after all, unburnt fuel.

The stove pipe, in such fires, becomes what fire-fighting professionals call a ‘fire hose’, disconnecting from the stove and often leading to entire rooms, and homes, being consumed by fire.

Many of us who have used stoves for heating, especially stoves with little or no thermal mass to keep us warm over cold winter nights, will try to set up a ‘slow burning’ fire before going to sleep.

However such a fire will not burn efficiently. It is basically too ‘cold’ to combust all the cellulose fibers in the wood fuel, and the volatile gasses and smoke released during the burning process.

What you need to do is build up thermal mass around and above the stove, to soak up as much of the heat produced while the fire is burning, before you go to sleep.

There are many beautiful ‘cob’ designs to choose from, that you can build yourself, as an addition to existing homes. Alternatively you can just stack lots of bricks around your stove, concrete them in, and decorate the bricks with tiles.

Size matters, when it comes to burning efficiency

Key to any fire-place or stove design is the way you prepare your wood for use as fuel.

To ensure as much of the cellulose, and volatile gasses released during burning, are converted into heat, it is important to keep the size of each unit of wood down to the size of small ‘sticks’.

This offers the greatest surface area per volume of wood. Surface area that is exposed to oxygen, and flames.

The high number of small pieces of fuel, each with their own rough surface area, also encourages air turbulence.

This air turbulence encourages the mixing of incoming fresh air with the heated air and volatile gasses present in the stove. In this way the ‘combustion’ of those volatile gasses is encouraged. Gasses which represent up to 60% of the total heating power of the wood fuel.

So collect smaller sticks, and prepare larger pieces of wood by splitting them down into smaller units, before placing them in any fireplace or stove.

Traveler wood stoves

Relatively new to the stove market are ‘traveler’ stoves. They burn small sticks of wood. They produce up to 4 kilowatts of energy / heat. They have a cooktop for cooking. When the stove exceeds 50 degrees Celsius, an automatic thermos-electric fan kicks in to blow excess heat out of the stove, to act as a space heater. They can be used in tents and other well ventilated spaces.

Stove design 101: Secondary combustion

Inefficient stove designs not only waste most of the energy produced by the wood burning process, but actually fail to release most of the energy in the wood in the first place.

Basically put, they burn only the cellulose. The wood. They fail to burn the volatile gases released during this process.

In this way most poorly designed and used stoves and wood heaters waste up to 60% of the potential heat energy stored in wood.

Secondary combustion refers to the process whereby these volatile gasses are burned and converted into heat.

One of the signs that you are using either a poorly designed stove, or are using it incorrectly, is the presence of smoke.

Smoke may indicate that your wood has not been cured and dried appropriately.

In any case, smoke indicates that secondary combustion is not taking place, and you are producing pollution harmful to humans, other animals, and our environment.

To achieve secondary combustion, you need to ensure that any gasses and smoke produced inside the over come into contact with something that is literally glowing hot. This can be red-hot metal mesh.

Upon contact, the volatile gasses, released when wood heats up, will ignite and combust. Just like in a typical internal combustion engine, where a spark plug provides this ‘ignition’.

Ideally your oven will burn very hot, with lots of turbulence, so that fresh air and these gasses and smoke mix. Then you will achieve as complete an ‘ignition’ of the volatile gasses as possible.

You can ensure this turbulence by shaping the internal surfaces of your oven, and the exhaust flue and chimney. Some of the gasses and smoke will achieve ignition in the actual flu and chimney itself.

You can ensure adequate fresh air intake by adjusting the inflow vents. The oven needs to be ‘drawing’ air at all times, to allow for high temperature burning and ignition of all the volatile gasses released by the heating and burning wood.

To avoid a ‘back-draft’, where smoke is drawn into your home, rather than up the chimney, make sure there is always a positive air pressure in the home. Ensure that the external air vents of your home are always ‘sucking’ in air.

The rising hot air from the oven will naturally decrease the air pressure in your chimney and flue. The oven will thus naturally ‘suck’ air into itself. It will try to suck that air from your home.

Many modern homes are almost ‘airtight’ by design. This means that unless you have an external air vent into you home that is open, the oven will not be able to draw enough air into the over to neutralize the air pressure within the chimney and flue. It will also not be able to draw enough air to burn at high temperatures.

If your home is totally 'air-tight', the only 'vent' that is open will be the chimney. This can lead to the air pressure inside the chimney, rather than being negative, relative to the home, can actually become positive, relative to the home.

In other words the air pressure in the home can end up lower than in the chimney.

The outcome of this is that the oven will tend to 'blow' smoke and carbon monoxide out into the home.

The home can end up acting pretty much how the chimney was designed to act, and start drawing out gasses and smoke from the oven.

The result can be carbon monoxide poisoning for the inhabitants of the home, both you and your pets.

Also over a long time-frame, if the home remains airtight, the fire can burn up all the available oxygen in your living areas. You will feel sleepy, fall unconscious, and never wake up. You should consider installing a carbon monoxide meter in your home to prevent such possibilities.

To ensure the air vents that allow air to enter your home are functioning, hand strips of paper or foil in front of the vents. If they are moving about in the breeze created by the vent, you know they are working. If they remain still, you know you have a problem. Ideally they will be flapping about, allowing fresh air in, and allowing humidity to escape.

Designing air circulation, vents, and exhaust systems is a science in itself. You can save a lot on heating and humidity damage costs, to your home and the health of its occupants, by designing and installing a system appropriate to your climate.

These ventilation systems can include passive heat exchangers, to capture heat from any air or water leaving the home, and return it to the home.

They work very simply. Air and water on their way out of the home are passed through pipes containing air and water which is either coming into the home, or circulating through the home in closed loops of air and water pipes. As the outgoing air or water passes through these pipes of air or water, the air or water naturally gives up its heat. Simply because of the relative difference in temperature.

Masonry stoves

If you are in the planning stage of building your home, you are in the fortunate position of being able to design your home around a professionally planned and constructed **masonry stove**.

These are the beautiful antique pieces of furniture many of us who have travelled around Northern and Eastern Europe have come across in the glorious 'Art Deco' homes of the 1900s, and of course much earlier periods.

These masonry stoves function best when the home is designed around them, rather than being placed in a room as an afterthought.

These traditional masonry stoves used brick chimneys. The naturally rough surface of the bricks ensured optimal 'turbulence' and thus 'mixing' of air, volatile gasses, and smoke, and thus the cleanest and most efficient 'burn' possible.

But when 'modern' stove designers replaced these brick chimneys with smooth steel pipes, this benefit was lost. It was not re-discovered until much later, when an apprentice was forced to build a chimney from bricks, after running out of steel pipes. Like most innovators throughout history, he was punished for his 'innovation'.

That apprentice was motivated by a need to 'get the job done', and not by any thorough understanding of fluid dynamics.

Chimney design for optimal 'turbulence'

The revelations concerning turbulence in chimneys and 'secondary combustion' apparently came about later, in true Zen fashion, when a mindful, alert, receptive observer noticed that the chimney the apprentice had built appeared to work better than the 'steel pipe' chimney's that had become 'the norm'.

On closer inspection and evaluation, researchers discovered that it was the rough surface of the bricks that provided the benefit. They produced greater turbulence, mixing the air and the volatile gasses and smoke more thoroughly, catalyzing greater 'secondary burning' of these gasses and smoke, and thus providing not only a 'cleaner' burn, but one which fully utilized all the wood fuels heating potential.

Of course a heuristic mind would have simply recognized that the brick design worked better, and used it from that moment on. But our 'modern' scientific mindset demands 'proof' before becoming willing to accept TROONATNOOR. This proof is often unobtainable, or takes a lot longer to obtain than the direct impressions of our senses.

This newly 'scientifically' proven fact has since become incorporated into the newer rocket stove's designed to produce the same sort of 'turbulence' inside the stove, and the chimney, to ensure as complete a 'combustion' of all the available 'fuel' as possible.

There are also other reasons to consider building a brick chimney. Bricks absorb heat, remaining warmer than the surrounding room air temperature, and thus ensuring a relatively low air pressure inside the chimney at all times. This ensures that the chimney will always enjoy a lower air pressure than your room, which means the chimney will naturally 'suck' smoke up and out of the room.

Metal, however, conducts heat too well. It gives off the heat of the rising hot air quickly to the room. This means it can quickly become colder than the room, cooling the air inside it. This leaves the chimney with a higher air pressure, as colder air is denser than warmer air. This higher air pressure can 'blow' smoke back into the stove, and your room. Or viewed the other way around, the *relatively* lower air pressure in your room will 'suck' the smoke out of the fire, and into your room.

Even Carbon monoxide levels are reduced, as all the carbon within the wood is burned up as fuel. Keep in mind that many deaths have occurred due to Carbon Monoxide poisoning, in badly ventilated rooms with wood fires. The gas cannot be 'smelled'. The victims simply become sleepy and fall asleep, never to wake up in their current 'experience engines'. What to other observer is called 'death'. Of course death is merely like walking towards a horizon. The person always retains a horizon before them. However for the stationary observer, the 'dead' disappear, beyond the *observer's* horizon.

Traditional masonry stoves, like well designed 'wood fired pizza ovens', ensure the 3 elements required for a clean, efficient burn, are always present. High heat, turbulence, and heat absorption.

A typical wood-fired pizza oven will burn at sustained temperatures of up to 900 degrees Fahrenheit. They burn clean with no *visible* smoke, particulates, or carbon monoxide.

That said, a temperature of at least 1200 degrees Fahrenheit is required to completely 'oxidize' (burn) all the carbon in the wood.

It is interesting to note that the theoretical maximum temperature a flame can possibly reach is 3600 degrees Fahrenheit. However in reality the flame will give off much of its heat to its environment before ever reaching this theoretical limit.

To sustain 'secondary combustion' the volatile gasses must be mixed with oxygen, and then 'ignited' by something very hot. Something visible 'red-hot'.

'Fire' bricks, designed to be used in fireplace, chimney, and masonry stove construction, begin to glow at around 2000 degrees Fahrenheit.

Terracotta bricks also sustain temperatures of 2000 degrees Fahrenheit with ease.

However concrete cement liners won't tend to reach temperatures high enough to 'ignite' the volatile gasses, and thus won't tend to promote secondary combustion. In fact normal concrete will turn to dust at the high temperatures required.

The entire surface of the chimney from oven to ceiling does not need to be specially designed. From about chest height to the ceiling, the chimney can have a smooth internal surface.

Be sure to insulate the chimney, to ensure it is always warmer than the room, when the fire is burning. Otherwise you risk 'back drafting' of not just smoke, but fireballs.

This explains why you get back drafting smoke when you first light a fire, or when it has gone cold, and you put more fuel on. The room becomes warm compared to the chimney. Thus the air pressure in the room falls, as the same volume of air expands to filling a larger area. In other words the 'force' the air is weakened, as it is distributed over a larger area.

The result is a relative 'vacuum', Vis a Vis the colder, denser air outside. This relative vacuum will suck the outside air down the chimney. The chimney thus becomes an air intake vent for the room, rather than a smoke exhaust / extraction vent, for the duration of time in which the room remains warmer than the chimney.

Reflexively, the colder, denser air exerts a greater force over the same area as the warmer, less dense air, and thus the colder air from outside will 'sink' down into the chimney, into the relatively warmer, less dense air, like an object denser than water will sink into water, displacing the water according to its mass, in the way that Archimedes formally noted.

So warm air will naturally ‘exit’ your home, and colder outside air will ‘seep’ into any cracks in your walls or ceiling. The colder outside air will ‘displace’ the warmer inside air. Your heating bills will go up, and/or you will be less comfortable over the colder times of the year.

Also keep in mind that the bigger the chimney, the taller it must be, to ensure adequate air pressure differentials to naturally ‘suck’ or ‘draw’ any smoke from the fire. An upside-down ‘funnel’ shape is often built into chimney designs, to produce a ‘Ventura effect’ in the upper, narrower regions. This gives the upper sections of the chimney greater ‘suction’ / ‘drawing’ power.

In any case, the chimney needs to be the tallest part of the dwelling structure, extending well below the roof-line, so it will act as the primary ‘drawer’ for the entire house. No other vent or accidentally ‘draft’ can then draw stronger, and end up sucking smoke back down the chimney and into the home.

And the chimney always needs to be warmer than the outside air. So before lighting a fire, allow the chimney to ‘draw’ warm air out of the room, and up the chimney, to start a naturally draft.

Chimneys are usually vertical, as hot air rises vertically, rather than horizontally. However a ‘J’ bend if often possible, as long as the vertical length is much longer than the horizontal length, to ‘draw’ despite the horizontal start of the smoke’s journey.

The 21st Century ‘Rocket’ (combustion chamber) Stove

Centuries of ‘hit and miss’ experience, followed by some dedicated, deliberate ‘trial and error’, based on a growing body of theory on fluid dynamics and efficient burning, have resulted in the most efficient stove designs to date, the ‘rocket’ combustion chamber stove.

The aim is to fully burn off all the potential ‘fuel’ placed in the stove. This requires temperatures reach 2000 degree Fahrenheit. At these temperatures all the particulate matter, volatile gases, Carbon monoxide, carbon dioxide, and visible smoke, are ‘burnt up’, and converted into heat.

Heat which is as limited as possible to exactly where we can use it. For cooking. For heating water. For heating the home. Ideally a thin layer of air and gasses directly under your cooking and heating surfaces.

The rest of the unit will ideally be insulated from this heat, to contain it within the restricted confines where it can be ‘harvested’. We will know we have achieved this when the stove exterior is literally cool to the touch.

Then we will have achieved maximum efficiency of fuel to heat conversion, and maximum efficiency of the transfer of that heat into cooking and heating heat.

Heat without that ‘traditional’ waste pollution called ‘smoke’. Smoke which has been clinically proven to increase the risk of respiratory illness death for children under 5 years of age up to 800%. Smoke that is a product of incomplete, or if you like ‘dirty’, combustion.

Those with the money and space for a professionally designed masonry stove, with a chimney that ensures efficient combustion, are left to search for a more compact solution, one that does not require a complex chimney to achieve 'clean' combustion.

The new rocket combustion chamber is tailored to burning relatively small 'sticks' of wood. These burn much hotter, and thus more efficiently. Per volume of wood, small, thin sticks have a much larger surface area than large pieces of wood. The interior of large logs remains relatively cool, reducing the average temperature of a stove or fire fueled by larger pieces of wood.

Of course compared to charcoal, any raw wood has a tiny surface area. This is why charcoal was used to fuel the initial growth of the metal industry during the early years of the British industrial revolution. And why 'charcoal grills' are so beloved by home barbecue enthusiasts.

The 'rocket' stove combustion chamber has a small shelf under the entrance on which you place the wood. It is thus surrounded by pre-heated air. Air whose volume and turbulence is regulated, rather than random.

There is a 5 to 8 cm 'vacuum sealed' insulation chamber between the combustion chamber and the ovens external surface. Like an advanced thermos bottle. Heat has no way of being conducted to the external surface, as there is no medium for it to be conducted through. So the external surface remains cool to the touch, as the internal, isolated chamber reaches 2000 degrees Fahrenheit.

The actual 'fire' is limited to the tips and ends of the small sticks placed on the shelf in the stove. These burn under the intense heat of the carefully regulated, pre-air flows that are naturally super-heated as they travel from the outside intake air vents, through and under the wood, to the back end of the combustion chamber where the burning takes place. This provides maximum fuel burning efficiency.

The heat transfer areas, the cooktop and heating elements, are the only places where any heat exits the sealed unit. Thus all the heat produced is available for cooking and heating. You only heat what you want to heat. This represents maximum heat transfer efficiency.

Ideally you will use pots with bases that are a perfect fit to the stove 'hotplates', to maximize transfer from the stove to your pots, and food.

Another design improvement is the positioning of a thin, flat 'carburetor' a little underneath the top of the combustion chamber, to ensure complete combustion, in this 'sub-chamber', before the hot air and radiant heat reach the hotplate and heating elements.

This small gap between the combustion area and the heating elements / hotplates will allow flu gasses to rise up, and transfer heat to these surfaces.

Another 'sleeve' is added with a gap at the top, through which an exhaust vent can provide for a 'draft'. The intense different in heat between the air intake vent and the air exhaust/extraction vent, will ensure a huge pressure differential, 'sucking' as much air in as you decide, using your intake regulator.

A very small chimney can be used with this design, attached to the exhaust vent.

Precision tolerances of 1mm are required, by the specification of this sort of design, to ensure the maximum fuel to heat conversion efficiency. This requires the use of expensive metals to sustain the 2000 degree Fahrenheit temperatures inside the combustion chamber, and the use of laser cut components, to ensure the extremely 'tight' dovetailing of these components with the rest of the oven.

However these parts can be shipped anywhere in the world, in 'kit' form, at relatively low cost, to be assembled 'on site' by persons provided with the training and skills to 'finish' the product locally.

As a 1mm difference in the final construction 'specs' can cost up to 20% in lost burning and heating efficiency, a special 'jig' is sent with the first 'kits', to ensure the design specs can be met by the final fabricators of the units.

This updated, old-school technology offers even the poorest people around the world a chance to save a huge amount of energy, and thus time, labor, and forests and woodlands, with a relatively small investment.

Millions of children, pets, and adults around the world will be spared from debilitating, often fatal, respiratory diseases. Their homes and communities can soon become 'smoke free'.

Thermal mass and simple heat exchange systems

When you give a cold friend a warm hug, you are deliberately setting up a 'heat exchange'. You are passively transferring heat from your warm body, to your friend's cold body.

You do the same when you cool off with a cold shower. The heat of your body is transferred to the water flowing over and around it. Or when you turn on a fan or air-conditioner. In this case it is the cool air flowing around your body that the heat of your body is transferred to.

Ideally you will set up a 'heat exchanger' around the chimney, so that much of the heat that would otherwise escape with the smoke, is 'conserved' within the room, keeping it and its occupants warm.

Heat exchangers use anything that conducts heat, to transfer it from the chimney, through that material, back into the room, or to be stored in a 'thermal mass'.

It is common in colder climates to embed the chimney in the thermal mass.

In milder climates, an exposed chimney will exchange heat with the room air flowing around it.

Or you might add an extra layer of pipe around the chimney, to prevent the hot metal coming into contact with anything flammable in the room, or anything that might be harmed or damaged by the hot chimney, and also to allow the chimney pipe to heat the air around it, within that 'enclosed space'. This air will then naturally rise up out near the top of the heat exchanger, and draw in air from the room up to be heated.

You can 'pipe' this air around the home as a simple 'ducted heating' system.

'Thermal mass' is any material that can absorb and trap heat for a reasonable period of time.

Remember that water is 5 times more efficient as a thermal mass than solid rock, or masonry. So consider using water as the thermal mass for your stove. You can then pipe the heated water through the room to heat it, or use the hot water for bathing and cleaning.

Place a small water tank (with an intake and an exit pipe) inside, above, or woven around the stove, in the form of tubes laid around the stove, parallel to the stove front. Place a one-way valve at the point the cold water will be entering the oven. Connect this to a cold water tap. Turn the tap on to fill the entire system with cold water. The water that is heated by the stove will expand and flow out of the 'top' of the system. As it does so, it will automatically 'suck' cold water in through the 'bottom' intake valve. And so the water will circulate automatically, due to 'convection'. Cold water will enter, and be heated, as the heated water is expelled.

Masonry stoves usually decorate their masonry, their thermal mass, with beautiful tile designs.

This thermal mass absorbs the heat of the fire in the oven during the burning of the fuel, and releases it gradually throughout the day, and more importantly, night.

Without this thermal mass, a stove needs to be tended all night. So if you end up in a home heated with a stove, chose the room with the stove with the biggest thermal mass above and around it. I got tricked into staying in a room with a stove with just a chimney, in Leibniz, and it was impossible to keep the room warm without adding coal or wood to the stove every few hours. The other inhabitants all had huge thermal masses around and above their stoves. My room had never been intended as a winter bedroom.

A simple solar heater (shower) design

If you are 'on the road', you can get the simplest of all 'solar showers'. It is a thick black PVC bag with a filler tube. You leave the bag in whichever position in or on your car that gets the most sunshine. This sunshine will naturally heat up the water inside. Cars can heat up very quickly in the warmer months, one reason it is illegal to leave a pet in a locked car, even with the windows partly down.

You can make more complex solar showers for your home. Basically take black PVC tubing and lay it on the roof on the sunny side of your home. It will heat up if there is any sunshine during the day.

If you live in colder climes, you will want to encase the black PVC tubing in glass, to insulate it from the wind. This will allow the sun in, but trap most of the heat, just like the windows in your home do.

Feed the 'cold' water in from the top, so that as you use the warm water insider the solar shower, it is automatically replenished. By the time the cold water completes the 'circuit' of PVC tubing, it should be warm.

Alternatively you may set up a closed loop of water that circulates around a greenhouse, or your home, before returning to the 'top' of the PVC tubing, to be re-heated.

A 'greenhouse' extension that heats your home, while filtering your air

I place this chapter before the chapters on building dwellings to get you thinking in this direction at the earliest design stages for your home. Consider incorporating this idea into either a bathroom extension, or main living area extension.

You can take any also take an already existing structure and add a 'greenhouse' to its 'sunny' side.

Simply take the same materials you would use to build a greenhouse, and build a 'greenhouse extension' onto it.

The sun will heat the air trapped between the home and the greenhouse material.

Now we can take advantage of the natural processes of convection, and the 'stack effect', to passively generate a draught of cold air exiting the home and entering the extension from the home, and warmed air exiting the greenhouse and entering the home.

Always, to create a draft out, you need ventilation at at least two points. Air must be able to enter and exit or there will be no draft. Heat will simply leak out through the vents.

Ideally you will have the exhaust vent up high, and the intake vent down low, to take advantage of natural convection currents, and the air pressure differentials these produce.

In general, the further the vertical distance between the input and output, the greater the draft. This is because warm air rises. The air lower down will be colder than the air above. The greater the temperature differential, the greater the velocity and strength of the draught. This is the same principle that generates 'wind'. Wind basically 'sucks' rather than 'blows'. Warmer air is less dense, as it expands to fill a larger volume with the same mass. This relative vacuum of lower air pressure naturally 'draws' in air that is colder and denser.

All processes in nature tend towards moving balances. Balances that they constantly 'overshoot', and then 'correct', overshooting again, correcting again, while tending towards a long term 'regression to the mean'. It is imbalance that produces what we call 'potential energy'. This is how electricity works. Electrons flow from excess to deficit, and as they flow through conductors, 'resistance' generates the various forms of 'energy' we perceive as heat, light, and sound. As the electrons continue on through this 'resistance', they 'work' for us, producing heat, light, and sound.

Without a healthy draught, air leaving the top of a home may draw air out of a stove or fire, out through the stove vents, sucking smoke and other particulates down from the chimney, and out into the room. This is known as a 'back-draught'.

Worse, it may draw volatile, combustible gasses out of the oven or fire, into your home, and result in fire damage to some, or all, of your house.

This 'vacuum' effect may also draw up dangerous Radon gasses from the ground below your home. This could be happening over a very long period of time, producing chronic health problems for you, your family, and your pets.

If your toilet S bend dries out, it will also draw up sewer gasses, and smells.

For these reasons it is key to ventilate rooms adequately at at least two points. But make sure the exhaust ventilation for extracting air is located lower than where your stove or fireplace chimney exits the room. Otherwise the room vent will draw air from your fire place or stove, as this is lower than it, and closer to it, than the room vent. It will use what was meant to be the fire output as an input. How obvious this will be will depend on the relative heat and thus pressure differentials in your chimney, and the ceiling exhaust vent. However what can be more dangerous to your health is a long term, less obvious poisoning of your air, and lungs. Like most things that kill us, the effects are gradual, over a long period of time, and result in chronic conditions, rather than sudden, obvious symptoms.

Even if you don’t have actual, deliberately designed and placed ceiling air vents, cracks, gaps, and holes in your ceiling can produce the same sorts of effects. For this reason it is always safer to air seal a home from the top down. Making it a priority to ensure that the ceiling is air-tight, before continuing down to ground level. That way your rooms will only vent air out from where you have consciously chosen to have it exit the home. This way you will avoid the problems we’ve just highlighted.

Passive ventilation of any closed space works on the same principles, whether we are dealing with a greenhouse, a bathroom, or the stairwell of a tall building. Air supplied at the bottom will naturally rise, as it warms, if it is colder than the air in the closed space. And only if that closed space is vented at the top as well as the bottom, allowing a draft to be generated by naturally occurring convection currents. If the extraction / exhaust vent is too large, all the air in the closed space will be replaced with cold air entering from the intake vent at the bottom. The colder, denser, air, will push out the warmer, less dense air. Each time you open a door into the closed space you will create a draught.

Now consider what sort of power such a draught could generate in a 50 story building. Consider the air temperature, and thus density differential between the top floor and the bottom floor. If the door at the top and bottom are opened at the same time, you can get a very powerful draft. Like opening your front door on a windy day. Any windows you have left open will be flung shut, or open, with great force, even though, when you were in the room, they barely moved.

Now remember that the context of all this discussion is our greenhouse extension ventilation. Place a ventilation hole at the top of the home exterior wall. Place an ‘exhaust’ fan in this ventilation hole. When you activate it, or it is automatically activated by convection currents of warm air rising and increasing the air pressure around the vent, it will suck this warm air into the home. It can be passive, relying on natural processes of convection, or active, using a very small amount of electricity.

In order for this exhaust to work, you will need to ventilate the exterior wall of the home in another place, so the air pressure can balance out. In other words you want to produce a ‘draught’.

Because your aim is to create a steady exchange of colder house air with warmer greenhouse air, you will place this ventilation down low, so that it draws in relatively cooler air from near the floor of the home.

This cool air will automatically be drawn out of the house, and into the greenhouse extension, as the relatively warm air in the extension rises, due to the natural processes of convection, and passively escapes, or is actively 'extracted', out the top exhaust ventilation hole.

The simplest version of this would be shutters that you manually open and close, to encourage a passive, natural circulation of war air into the home at the top of the extension, which vent out of the extension into the home, and out of the home at the shutters near the floor of the home, which vent out of the home and into the extension.

This way you can regulate how much heat remains in the greenhouse extension, and how much is allowed to naturally flow into the home.

Your priorities and needs will change during the year. Such as when you begin planting seeds and growing seedlings.

The plants you place in the extension benefit from a constant flow of CO2 rich air. The plants in turn would 'scrub' and purify the atmosphere, removing C02, and, via the process of transpiration, filter out contaminants and toxins (Spider plants will provide a great air filtration system for your home if planted around the home and in the extension), while adding pure, fresh, oxygen. Also consider planting peppermint and other mints near air vents in your greenhouse and home. These are known to deter pests, who dislike their scent, which humans tend to find pleasant.

This sort of extension could provide enough heat for autumn and spring in the colder northern latitudes. Compost heaters and wood burning stoves would fill the heat deficits during the coldest months when there is no sunshine.

If your greenhouse is close enough to your home, you might consider venting it with insulated ducts, in the same way, to transport cold air from your home into the greenhouse, while transporting the warmer air of the greenhouse to your home. The same 'passive' principles would be employed, aided where necessary by low power exhaust fans to extract the warmer air, and ensure it moves in the desired direction fast enough to benefit your home.

You can get automatic vent opener and closers for greenhouses and homes. Basically these use a metal alloy that expands and contracts with changes in temperature. You 'calibrate' the vent with a thermometer, adjusting a screw so that the vent opens at the desired temperature, and returns to the neutral 'closed' position when the temperature falls back below this threshold. 80 degrees Fahrenheit is a typical setting for greenhouses.

Consider making a greenhouse extension a part of your home, by building glass doors that open out into the extension. This way the extension will benefit from any excess heat you decide to 'vent' by opening the glass doors. You can use the extension as additional living space when the sun is shining during the colder months.

Living structures

It is possible to live in tents, out of your car or van, and any number of temporary structures, while you map out the future of your property. In fact ideally you won't start building a permanent structure until you have figured out all of the implications of what we have been discussing.

By now you will probably be wanting to incorporate as many of the ideas you've just read into your home design. To build from the ground up. To optimize the design to take advantage of all the clever innovations humans have accumulated over the millennia, into the coziest, most comfortable, energy efficient, warm in winter and cool in summer, fire safe, flood safe, aesthetically appealing, welcoming, and adaptable, home possible on your particular budget, and with your particular needs in mind.

If you have been carrying out all the surveys and Zen observation studies of your property, and checked out what others have built in your neighborhood, and gone online to take a survey of what ideas and structures people around the world have come up with, you will have noted what building materials are most readily available at or near your site. What building materials will involve the lowest transportation and preparation costs, before they will be in a state for you to build with, on your site?

Shipping containers

If you live near a port town, where 'used shipping containers' are most affordable, I definitely think you should incorporate one or two into your design, whether for your main structure, or for 'auxiliary' buildings like garages, work spaces, storage sheds, and so on.

The price of used shipping containers depends on how far you need to transport them from the docks they are now sitting on, after their years of world travel.

Just be sure to find containers that were never used to transport toxic, hazardous, even radio-active, materials. For residues might remain, despite your best efforts at cleaning them up.

Shipping containers are structurally sound wonders you can stack in creative ways to produce modern homes with balconies on top and covered patios below. Go online to find a treasure-trove of design ideas.

Cob homes, stoves, kilns, and other structures

'Cob' refers to a building material made from straw, topsoil, and sand. The amount of sand added depends on how much clay is in the topsoil.

Often the topsoil removed to form the foundations for the home is sufficient to build the home. Thus the 'footprint' of the home is usually no larger than the home itself.

The straw provides insulation and bulk. This is because straw is hollow, filled with air. Air is a poor conductor, thus a great insulator. Air is what insulates the hot contents of your thermos bottle from the cold outside. It keeps the contents inside separated from the cold outside, by air.

Clay particles in the topsoil provides mass, form, structure, and fire retardation. Together they bond to provide a building material with good structural strength, great thermal mass, high insulation properties, fire-resistance, and aesthetic charm.

Cob is ideal for building homes, fireplaces, stoves, chimneys, furniture, heated beds, heated benches and couches, stoves, ovens, and kilns (for charcoal production), due to its fire retardant and insulation properties. It will slowly heat up, retain this heat for long periods, and then gradually release this heat over time, radiating it evenly and continuously.

Cob is a great building material for home walls, keeping your home warm in winter and cool in summer. Its great thermal mass will absorb the warmth of the sun during the day, and release it slowly during the course of the night, helping maintain a constant, comfortable temperature.

If you live in a particularly hot area, you can paint the outside white to reflect the sun's heat, and prevent the cob absorbing much of it. This will keep your home cool all day and night. And then during the night the cob will cool down, and remain cool throughout the day.

Cob's heat insulation and fire retardation qualities are a great reason to build with cob in areas where brush and forest fires are a potential hazard. Cob is considered fireproof, due to the proportion of soil and sand in it. The cob will not catch fire, nor conduct heat from outside.

Just keep in mind that a firestorm burns up all the oxygen available to it. In Dresden, Hamburg, Tokyo, Hiroshima, Nagasaki, and many other German and Japanese cities, hundreds of thousands of men, women, children, and old people were suffocated to death by allied fire-bombing, as they took shelter from the flames in otherwise fire-safe shelters and basements.

Cob is also ideal for building outdoor entertainment areas, and windbreaks.

You may choose to build cob-based thermal mass 'heat-sinks' around or inside your existing home or greenhouse, to create warm 'micro-climates' that increase your comfort, and allow you to extend growing seasons, prevent frost damage, or grow 'exotic' crops and plants that will surprise your neighbors. .

To form the 'cob', mix straw, topsoil, and sand until you can form a structurally stable 'cigar' shape from it. It is ready for building when you can bend this cigar form without it breaking.

Mix the cob on site as you build. Ideally many hands will make light, social, community building work of your building project.

Invite locals, and people over the internet, to participate in your building project. To 'learn by doing'. You will probably find a lot of people willing to participate, providing you with free co-workers, and them with even more valuable knowledge, skills, and experience. Many of these people will go on to repeat this process on their own properties.

Build the cob up in layers, allowing each layer to dry and consolidate before adding the next layer. In this way a wall can 'grow' at around 30cm a day.

The ideal thickness for cob walls appears to be between one and two feet, or 30 and 60 cm.

Overhanging eaves will protect the external cob walls from storm and water damage. But don't worry about your cob 'washing away'. Cob has been used for thousands of years in some of the wettest, coldest, rainiest, windiest, most damp locations on earth.

Rock foundations will keep the entire structure stable, and prevent potential cracking of walls from earth movements.

One distinct advantage of cob construction is that you do not need to use any sort of 'forms'. Rammed earth, adobe, and compressed earth bricks all require you to first build forms into which you 'ram' and 'compress' the building materials into. The results tend to be more linear than organic.

With cob, you can form luscious curves in walls. You can build organic arches and vaults in your doorways and ceilings.

Cob is more like sculpting a home, than building a house.

External cob walls will 'weather' at the rate of a few millimeters a century, without requiring any sort of 'finish'.

However if you do decide to plaster your walls, consider that a bright plaster on the inside will reflect light and heat around the room. While adding a bright, light plaster to the exterior surfaces will reflect harsh sunlight, and keep your home cool.

While cob is aesthetically appealing in its raw form, it is also ideal for painting and staining with attractive designs. So if you live in colder climes, you may want to stain the cob a dark color, to absorb as much sun, especially winter sun, as possible.

Other non-linear forms can be 'molded' by hand to any shape desired, by carefully placing the cob where you want it to rest, and then compressing it from all sides, until it forms the shape you desire.

Add the cob in typical bread-loaf sized quantities, similar to large bricks.

Use a wooden 'tamper', like a large barista espresso tamper, to get at hard to reach crooks and crannies.

Shape the forms you desire. The shapes are only limited by your imagination.

You can construct the roof out of cob if you like. Or place a conventional roof onto cob walls and foundations.

Depending on your local climate extremes, you will place the 'shiny' side of the roofing material facing into the home, to reflect radiant heat back into a cold room, and to encourage the roof to absorb heat from the sun, or alternatively have a shiny white roof deflecting the sun's heat away from the home, and allowing excess heat to be conducted out through the roof.

You may want to add an additional layer of metal foil to reflect radiant heat up or down. However this foil will be highly conductive, and will conduct heat between the outside and inside, if you don't separate it from the roof and ceiling with a 2cm or so gap of air. Remember that air is a poor conductor of heat and electricity.

If you insulate and isolate your attic in this way, it should never become warmer than the outside air. You won't lose heat from your home to the outside, through your roof. And you won't absorb heat from the outside, making your home uncomfortably hot.

If you place ventilation intakes near your floor, and ventilation extractors and exhaust fans in your ceiling (or below if you have a chimney), you will enjoy a natural circulation of cool, fresh air in your home, without the need for expensive (in terms of construction, installation, and running costs) air conditioning. If you place wet linen, cotton, or similar at the intake vents, the moisture will evaporate. This evaporation is a change of state. Such changes of state requires a change in the ambient energy levels. This results in a cooling of the air flowing over the evaporating moisture.

'Clayslip' cob

You can use clay, rather than topsoil, if you wish. First sieve the dry clay into a fine powder. Add water to this powder to form 'clayslip'.

Continue adding in small amounts of the clay powder until the sieved clay you are adding to the mixture floats to the surface of the mix. This indicates you have attained the desired consistency. This will store well for weeks.

Almost any sort of straw (excepting oat straw) can now be tossed into the mix like a salad, until each individual straw is completely coated.

Many cob builders recommend you first chop the straw into small lengths between 1 and 3 cm.

Think of each straw as a thermos bottle. You want to isolate, and thus *in*sulate, the air inside the straw from the outside environment, by coating it in insulating clayslip. The insulative properties of the cob will be the cumulative value of each of these individual straws.

As a rough guide, the above described process usually results in a mix of about 2 parts sand to 1 part clayslip, and 1/2 part straw or other plant fibers.

Take handfuls of these clayslip coated straws and shape it into a form like a bread stick. Toss this form into the air and catch it. You can consider it 'ready' for construction when it retains its form, its structural integrity, after this treatment.

Expect that it will take about 2 buckets clayslip per bale of straw to achieve the final desired consistency.

To achieve 'straight' walls, you may want to use construction forms, to 'pack' the cob into. It will dry and retain that form, and straight surfaces and edges. You can stamp down on the form from above, and 'finish' any edges with flat forms. Once the form is stable, you remove the back, sides, and front of the form, and allow the resulting 'layer' of cob to dry, before repeating the same process from the top of the previous layer of cob. Lay the inside edge of the form along the internal boundaries you want for your rooms.

Expect to leave each 'layer' to 'breathe' and fully dry out for about one week per 2.5cm of wall thickness. In this way a 30cm thick cob wall will take about 3 months to fully dry out, before you can begin plastering or painting it.

Adobe (Mud brick)

Humans have been building dwellings and other structures from adobe for thousands of years.

Unlike working with concrete and cement, no protective gear is required. You can use your bare hands. There is no dangerous 'concrete' dust or chemicals to worry about.

A typical 'adobe' mix would contain at least fifteen percent, but no more than thirty percent, clay. Clay has a tendency to expand and contract, and if the clay content is higher than 30%, the adobe is more likely to crack.

One part water is mixed with four parts sand and straw (or other plant fiber). The clay and plant fibers act as the 'binding agent' for the sand, which is the main structural ingredient, in the same way that cement is the 'binder' in concrete, 'cementing' sand and rocks together. The straw also provides the equivalent of ultra-modern 'hollow fiber' insulation. It basically traps air, which is a poor conductor, isolating the inside of the structure from the outside.

Bricks made of this mixture can be pressed into forms and then left to slowly dry in the sun.

As for concrete, the final product will be stronger if you keep it moist as it dries, and allow it to dry slowly, rather than quickly. To achieve this, cover the drying bricks with straw to prevent too rapid moisture loss and drying. You want strong bricks, not brittle ones.

Once they are fully dry, you will use the same mixture to 'mortar' the bricks in place, just as you would 'lay' any brick wall.

To protect the walls from strong rains, ensure your roof has wide eaves, to prevent rain hitting the walls with any force. You can also apply a lime wash to the walls to 'weather-proof' them. Any rain damage should be repaired in a timely fashion.

Cob –Earthen-adobe ovens

There are several forms of heat, including conductive heat, such as when you place a pot on a hotplate, radiant heat like that we get from the sun, and convection / thermal heat, like the hot air inside an oven.

Your typical home oven heats the air inside the oven, to heat the food. The result is often uneven cooking and baking, due to pockets of relatively cold air in the oven.

The thick earthen walls of an earthen oven, on the other hand, absorb the radiant heat from the fire, releasing it slowly and evenly over time, as radiant, thermal/convection, and conductive heat.

The air inside the oven remains moist and hot. The contents of the oven are baked through, evenly, from every side, as the earthen walls radiate the heat from the fire below, from every angle.

When building an earthen oven, cob oven, or adobe (earth brick) oven, be very careful to remove river stones or any other 'foreign object' from the clay, sand, and straw that might explode when heated.

When applying the materials, ensure there are no air gaps in the mixture. Pockets of air inside the structure can heat up and burst the structure from within, more or less exploding.

To 'finish' the oven, take the back of a spoon to indent the surface. Then smooth a layer of clay over these indents, to leave a smooth finish.

I always wonder why people put fridges next to ovens. Surely you are consuming electricity to cool the fridge, and heat the oven. Why would you put them next to each other, to make their work that much harder?

Pyrolysis

For the last 5000 years or so humans have heated wood and other organic materials in relatively ‘air-free’ kilns. This process is known as pyrolysis. It is a ‘smothered’ burn that produces a different chemical reaction to normal burning. The resulting ‘char-coal’ is high in bio-available nitrogen and phosphorous.

Many ethno-biologists believe it is charcoal that facilitated the success of Native American Indian agriculture, especially that based on the ‘Milpa’ system.

Pyrolysis is a completely sustainable, CO2 negative practice that can be performed in home-made kilns made of tin cans and bricks, village kilns made of cob, or large scale industrial plants.

No direct flames make contact with the material being pyrolisized. The material is simply heated.

The heat leads to the removal of volatile gasses and other impurities in the material within the wood.

What is left is pure carbon known as ‘charcoal’, or sometimes ‘activated’ charcoal, or ‘bio-charcoal’ (bio-char).

This charcoal retains the original nitrogen and phosphorous that was present in the living wood, in a form that other plants will now be able to readily access.

The charcoal is also left with a slight electrical charge which attracts and binds minerals to it.

Charcoal also offers a micro-crystalline structure that is great for water retention, offering plants and micro-organisms micro-water reservoirs.

If you look at charcoal, under a microscope, you will find it riddled with microscopic channels. These were once the ‘pores’ of the living wood. As such charcoal has a huge internal surface area relative to its total external surface area, or volume. In fact one gram of charcoal has 9000 square feet of surface area. This is the equivalent to around 2 football fields of surface area.

This structure of microscopic tunnels naturally absorbs and retains water soluble nutrients that filter down to it through the soil along with moisture.

These nutrients, and moisture, provide the perfect conditions for a wide variety of beneficial soil micro-organisms to thrive.

The end result is a fertile soil with that ‘friable’ texture that plant root systems love.

The ‘charcoal’ profession is one of the oldest. And it is making a small comeback among the permaculture community, in the form of homemade charcoal kilns. Woody material is collected, and turned to charcoal. This charcoal can provide a good source of cash or barter.

For those of you brainwashed by the ‘New World Order’ ‘Global climate change tipping point’ propaganda, you can feel morally superior knowing that charcoal is the ideal ‘carbon sequestering’ technology, storing CO2 absorbed by trees and other woody plants, in this stable form, for thousands of years. In fact the supposed ‘noble’ lie of ‘catastrophic anthropocentric climate volatility’ could actually be turned to genuinely noble ends by pushing for ‘carbon credits’ for each kilo of charcoal produced. The charcoal would be used to improve soil fertility around the world.

The evolution of the 'Milpa' system

Where the farmers faced brush or timbered land, their first action was often to 'slash and burn' the land. This left nothing but ashes and scorched earth. The farmers might get a few crops out of that land, but it would then become 'worn out' and 'barren', forcing them to move onto a new site, where they would repeat the process. The land they left behind might recover, or it might become desert wasteland. In any case it would be decades before that soil would recover its fertility, if at all. But as long as there was always new land to move onto, this slash and burn agriculture could continue to be practiced. Sustainability wasn't an issue when the human population was very low, relative to the vast 'untapped' land resources of the earth.

Slash and burn was suitable for a nomadic lifestyle. Or in any case forced a relatively nomadic lifestyle upon its practitioners.

However as more permanent villages and then towns evolved, and land became scarcer, the farmers had to find ways to preserve and maintain soil fertility, so that they could continually farm the same land over and over.

The original 'fertiliser' was simply time. A field was left 'fallow' (idle), for one or more years, in order to give it time to recover its natural fertility. To regain the original levels of nitrogen, phosphates, and other nutrients, as the plants that naturally produced these byproducts grew, and died, and returned such nutrients to the soil. Of course wandering animals would also add their own 'deposits' of such nutrients.

Then some observant farmers noted that fields where clover and other 'legumes' grew in such 'fallow' fields tended to 'recover' their fertility much faster than fallow fields with little or no clover growing in them.

This lead to deliberate planting of legumes in fields either left totally idle (fallow), or grazed by farm animals. It was a win-win. As the animals thrived on the protein rich legumes, and returned a mass of nutrients back to the soil in their dung.

'Legumes' 'fix' the nitrogen that makes up such a large proportion of our atmosphere, making it available to plants, including the deliberately planted farm crops.

Legumes do this at room temperature. A feat modern technology can only perform at massively high temperatures and pressures. Technology that requires the largescale burning of fossil fuels like coal, oil, and gas.

This technology was invented, in Germany, by a 'Jewish' German scientist, in response to the criminal (a war crime under the Geneva convention and under the international 'law of the seas') blockade of Europe by Britain during WWI, as a substitute (ersatz) for the naturally occurring sources of nitrogen the illegal British blockade of Europe denied German industry. Of course thanks to C.I.A 'false flag' attacks like 'The Oklahoma City Bombing', most of you are aware that the typical fertilisers you can buy at your local gardening center contain the Nitrogen compounds also used in explosives. The German invention was driven by the need for such explosives. It is one of those situations where war motives produced a real boon for humanity. One of those 'invisible hand' moments in history.

Of course before the use of guano, and then the later synthetic nitrogen fertilisers, farmers used whatever local sources of fertilizer they could find.

In Asia, for example, a sophisticated system of human waste capture and transportation evolved, returning human waste to the soil as fertiliser.

In coastal regions seaweed was often dragged up from the beaches, and used as a high quality fertiliser.

All of this activity was necessary to enhance and protect soil fertility, and thus ensure the success of harvests over the long term, as human settlements became more and more permanent.

Before WWI, the main source of nitrogen for explosives and fertilisers was natural bird droppings known as 'guano'. With the invention of steam powered vessels, the huge deposits of 'guano' (bird droppings) discovered much earlier by sailors passing through the Pacific Islands, could now be exploited for the manufacture of gunpowder, explosives, and fertilisers.

But what about the natives of the Highlands of South America? They certainly didn't have access to guano, or seaweed. And 'slash and burn' would have proved as unsatisfactory a farming method in the past, as it does today.

What the natives of South America learned is a secret that many permaculture enthusiasts are once again re-learning. The use of pyrolysis often referred to as the 'Milpa' system.

The ancient 'Milpa' system appears to have employed 8 to 10 sites in a 70 to 100 year rotation cycle, ensuring fertile gardens for multiple generations.

The secret is pyrolysis. A process of 'smothered' burning.

Many of us are familiar with the cottage industry that emerged during the middle ages in Europe. The trade of 'pyrolysis' was practiced by 'char women'. They set up 'charcoal ovens' in which wood was turned to 'charcoal'. A 'coal' made from the 'charred' remains of wood that was slowly pyrolisized in the ovens.

These ovens were an evolution of earlier, less efficient practices in which the wood was 'pyrolisized' in simple heaps, or even where it lay.

In addition to the use of such 'charcoal', the 'Milpa' method added broken pottery shards, composted human waste (faeces and urine), and composted plant wastes, to improve soil fertility.

The mounds used in the Milpa system were volcano shaped to collect moisture form rainfall and due, and organic matter and topsoil carried on the wind. Corn and beans were planted in the same mound, the corn being planted 2 weeks before the beans, so the corn had a head start, and the beans would have newly established corn stalks as natural 'stakes' and 'trellises'. The beans would be thinned out leaving only 2 bean vines per corn stalk.

One week after the corn was planted, squash mounds would be seeded.

Three tomato plants would be planted per mound as well, with three stakes leaning in from the perimeter of the mounds to form a 'teepee' from the 3 tomato plants.

Three peppers would be planted per mound.

Around the perimeter of the mounds a ground cover of sweet potatoes would be started. These would overflow out onto the paths.

Potatoes would be grown in piles of organic debris in the shade of the mounds.

The mounds would be shaped so that it was possible to reach into the center of the mound, without having to step on the mound. Thus the soil would never become compacted.

Human urine would then be poured over the pottery shards, charcoal, and composting organic materials.. Urine is very high in plant-available Nitrogen, whereas organic material and the pottery shards provided both Phosphates, and micro-habitats similar to the charcoal, where moisture and water soluble nutrients would tend to accumulate, providing habitat for soil micro-organisms, and the necessary nutrients and moisture required to sustain crops during the drier times of the year.

All these elements offered a perfect ecological system in which soil micro-organisms could thrive, contributing enormously to soil fertility.

A site would first be cleared. The wood and brush would be heaped on a pile and pyrolisized in the open. The woody material would not be allowed to 'burn' as such. It would be 'smothered' to prevent it being 'burnt up'.

The resulting charcoal would be added to the soil, which would be farmed for 7 to 10 years.

After the soil fertility was 'used up' by the crops, the farmers would move on to a new site, leaving behind a 're-growth' team to 'manage' the depleted soil.

This team would plant valuable, productive, desirable trees, shrubs, and plants, rather than merely leaving the land 'fallow', and allowing random plants to grow.

A variety of medicinal herbs, and plants useful for building, thatching, weaving, and for their fruits, nuts, or medicinal value, were planted, or selectively cultivated from what naturally grew on the abandoned site. Those plants less desirable would be removed, allowing the more desirable plants a chance to thrive.

In time the farmers would return to this original site, and repeat the initial pyrolysis process, adding even more charcoal to the site. The charcoal originally laid down would have absorbed a decade of nutrients, and be home to a thriving ecological system of soil micro-organisms. By repeating the process, rather than degrading the soil, these farmers actually built up soil fertility over the generations. The process represented a constant increase in 'capital'. The farmers lived off the interest only.

Today we call this 'sustainable' farming.

These 'Milpa' farmers actually left the land more productive and fertile than they had originally found it. They continued to improve the land. Adding fertility. Increasing the output of the land. Bequeathing a boon to later generations, rather than living at the expense of later generations, as modern farming methods tend to do today.

The 'Milpa' farmers failed to 'copyright' their system, but it was essentially what we today call 'Permaculture'. It will probably be made criminal by the same people who made it a crime to criticize Israel, or disprove the official fictions known as 'Man-made global climate change crisis tipping point', and the various CIA-Mossad 'false flags' such as 'Islamic terrorists did 911', 'Timothy McVeigh carried out The Oklahoma City Bombing as a homegrown terrorist, and not a PatCon operative for the CIA', 'Sandy Hook was real and not faked', and of course, 'The Holocaust'. Why? For the same reasons. To centralise all power and control in the hands of a few Banksters and Global corporations. What is often referred to as 'The New World Order.'

Practitioners of the 'Milpa' system observed, and then actively planned for, took advantage of, and reaped the benefits of, what we today call forest plant 'succession' after a disturbance, such as fire.

They would have observed that, after a natural fire, a 'pioneer' ecosystem would first emerge. Beans and nuts would vine around the remnants of the fire. They might not be able to directly 'observe' that these legumes were fixing nitrogen, and improving soil fertility, but they would observe that these plants thrived, and were edible. So they would take advantage of this initial stage of the regeneration process.

They would have noticed that any naturally occurring corn would thrive in the newly cleared area. It would have full access to sunlight. The corn would quickly produce a large biomass of vegetation, pulling up large amounts of soil nutrients, which, after the harvest, could mostly be returned to the soil via 'chop and drop' mulch, which would not only prevent weeds growing, but retain soil moisture, and offer habitat for worms and other beneficial organisms.

Creepers and vines like squash would thrive in the part shade of the corn, providing ground cover and preventing weeds and moisture loss.

There would be no competition between these plants. They were in fact naturally occurring 'companion plants'. The corn grew vertically, and these other legumes, creepers, and vines, would grow mostly horizontally, while also taking advantage of the corn stalks to grow vertically, without doing any harm to the corn. In fact they prevented other vertical 'weeds' from growing, and competing with the corn for sunlight.

By accident, or design, they would have planted tomatoes and peppers and okra break between the corn crops. By preventing large concentrations of any single crop, pests would not be attracted to the area, nor thrive. If any sort of parasite attacked one stand of corn, the other, relatively isolated stands of corn, would be left unaffected. The same would apply to the other crops, separated by the stands of corn.

Potatoes would also have thrived in this situation, under heaps of rotting organic matter, from the dead creepers, vines, legumes, and 'chopped and dropped' weeds and corn plants, and leaves and other organic matter blown in by the wind. Swales and swale paths would have trapped both organic matter and moisture on their down-hill and down-wind sides.

Potatoes would thrive under this layer of dead, rotting organic matter. Potatoes not only enjoy poor soil, but would have contributed to future soil fertility for later crops which require denser, more nutrient rich, and friable soils, while providing an immediate harvest of calories and nutrition. The Potato plants would penetrate the soil, aerating it, allowing penetration of moisture and soluble nutrients. As the rotting organic matter decomposed it would improve the soil prepared in this way by the potatoes, which themselves would add valuable nutrients, fixing nitrogen, and decomposing to provide phosphates, and 'habitats' for valuable micro-organisms.

Sweet potatoes would naturally extend out past the directly cultivated areas in search of sunlight, their roots breaking up soil, aerating it, and increasing its fertility, while their leaves provided ground cover, starving weeds of sunlight. In this way sweet potatoes would provide a free source of farm labor, and a crop that required no extra human input.

The farmers, over generations of living on the same plots of land, would have observed how sunflowers attracted beneficial insect predators like praying mantises and birds. They would have noted which plants attracted birds, and observed the benefits of bird droppings.

After having cultivated one site for the initial period of 7 to 10 years, and moving onto the next, they would

Thus the initially cleared site would provide a bountiful harvest of sun-loving annual crops like corn, beans, squash, tomatoes, potatoes, peppers, sweet potatoes, and sunflowers. All with minimal maintenance requirements. The farmers would have a nutritious, balanced diet. This diet was relatively secure, being resistant to drought and pests.

And as the entire cycle ensured the soil would increase in fertility and productively from generation to generation, this form of agriculture could keep up with moderate population growth of the tribe.

Water features, ponds, dams, swale paths, and soaks

Water features are functional in many ways. They can be extremely therapeutic. A calming balm for weary eyes, ears, and souls. Monet spent most of his career painting a series called ‘Water lilies’ growing in an artificial pond he had constructed on his property in France. Most of the world’s greatest gardens feature ponds and artificial lakes, from London’s Hyde Park, to Versailles.

The most productive leaf and root crops by mass are aquatic. The water supports the plant bodies, allowing the plants to grow much larger, and dedicate all their energy to this growth, rather than to structural membranes to support them, to ‘fight gravity’, as land plants must do.

In terms of protein production, aquaculture can be up to 30 times more productive than land protein production.

In terms of fertile soil production, shallow lakes and ponds more productive than even forests. By angling the bottom of you ponds, you can ensure all the organic matter in them accumulates in the ‘deeper’ end, which becomes a ‘silt trap’.

Quite small scale aquaculture can produce enough mulch for your entire kitchen garden.

If you ‘seed’ the pond with fish, they will take care of any mosquito problems, by eating the mosquitoes, their eggs, and their larvae.

It is therefore fitting that our ‘Garden of Eden’ should contain bodies of still water, connected by ‘splash pools’ of moving, aerating water. Our garden will thus be full of life and movement. A true paradise.

While most of the techniques described in this guide can be carried out without the use of any heavy equipment, water features, including Swales, will be one of the few exceptions.

And as bringing in heavy equipment can prove a large financial drain on your project, you will want to plan ahead to take the best advantage of such equipment, and the expertise of the people using it, while you have access to it.

Before rushing out and hiring a digger and driver, work out a plan of action for them. What you want them to get done in the limited time they will be present.

Or consider forming a local co-operative, and buying a digger, and paying to have someone trained to operate it. The co-operative can then 'rent out' the digger and operator.

Some people will object to using heavy earth moving equipment at all. That will be your personal decision.

However once this heavy earth moving work is done, you will probably want to focus on low tech farming methods, home warming, cooking, and cleaning. The less dependent you are on machines and fossil fuels to run them, the more independent you become.

This will require you to learn how to use scythes and saws. And learning how to maintain them in working order. Whatever tech you do use, learn as much about it as you can, in true 'Zen and the art of motorcycle' fashion.

If you choose to use chainsaws, then learn how to use them safely and effectively. Learn how to maintain them. You might even consider learning how to repair, and make, your own chains. This will make your community more independent of the 'cash economy', and provide a possible source of trade and barter with 'outsiders'.

You will want to plan your dams, ponds, and swale paths carefully. And then work out the optimal sequence for realising these water features.

Once you have an idea of what you want to, and can, achieve with the earth moving equipment, plan the 'sequence of actions' carefully to avoid having this heavy machinery compacting the soil on your swales and other future planting sites. Aim to have the heavy machinery enter on one path, and leave on another.

If you plan carefully, you will probably be able to seed the swales immediately after the earth mover has produced them, stabilizing them, and beginning the first phase of their evolution into food forest strips. Your future 'strip malls', along which you will casually walk, to pick up fresh fruits, vegetables, fibers, and other goods.

Consider if the same equipment and driver can also be used to move heavy objects like fallen trees into or near the pond, as a future feature of that water feature. Any sunken or half-sunken solid objects provide thermal mass to heat the water using sunlight, and they also provide habitat and 'safe zones' for aquatic creatures, lizards, ducks, geese, fish, crayfish, and frogs. So if you have large boulders lying around, plan how you can use them as 'thermal masses' either to heat your home, by placing them on the sunny side of your home, to reflect / radiate heat collected from the sun during the day, throughout the night, or to heat your pond, or even produce a microclimate in a wind-shielded 'nook' or 'cranny' of your property.

Keep in mind that a plant growing in water has its entire weight supported by the water, and so it can devote all its 'energy' to growth. So you get greater efficiency.

Some plants that you can grow on the edge of ponds, in ponds, or even in buckets on your balcony, including Tarot, the potato of the sub-tropics, which grows along the boundary between the water and the land, including in swamp and marsh-like conditions. Lotus, water chestnut and ginger parings are a few other examples.

Flat areas along the pond shoreline will provide habitat for fish and other aquatic creatures like frogs to spawn, and will heat up quicker than the deeper sections of the pond. The deeper areas will provide habitat for different aquatic creatures, so aim for a balance of shallow and deep areas.

Water exposed to the sun will heat up, as will other forms of thermal mass like rocks. Add other 'water features' like half sunken logs to create a varied habitat to foster a diverse ecosystem of aquatic plants and animals, and also offer 'safe zones' for lizards and ducks and geese to escape potential prey.

Naturally 'sheltered' ponds, or those protected by deliberately planted hedgerows and other 'wind breaks', will retain heat and moisture, and provide those tasty 'micro-climates' for extending growing seasons, growing things 'out of season', and growing stuff to astound your 'conventional' neighbors.

Seth Holzer's Austrian Alpine 'Hof', in the Lundgau valley, is a great example. Check it out at his KRAMETERHOLF website.

The multi-functionality of ponds has already been noted. But consider also that they will trap soil and other organic matter, along with water run-off from around your property. At some point you may want to 'dredge' up the bottom of the pond to use as fertiliser, or in your raised garden beds and garden mounds.

Try to give your ponds deeper and shallower sections. The deeper sections will be colder, and less oxygenated. The shallower parts more oxygen rich, and warmer. Each represents opportunities for different marine life.

Place 'refuge islands' in the ponds for lizards and fowl to escape from their predators. Large rocks and tree trunks, taller than the water level, placed strategically within the pond, will produce such 'islands'.

Thermal mass

We often speak about 'thermal mass' when it comes to passive, low energy home design.

Remember that a dark mass will absorb light, and heat, whereas a light mass will deflect light and heat.

If you have 'dark' and 'cold' areas in your home or on your property, consider using light colored masses to 'move' light and heat around.

Paths will absorb and trap heat from the sun. So place paths where this property will be an asset, a blessing, rather than a liability, a curse.

You can use roads, parking areas, drive-ways, and paths to soak up winter sun, by placing them on the winter-sun side of your home. This will provide you with natural, passive, solar heating. A heat sink that will soak up that free heat, and release it during the night, warming your home.

Avoid placing these where the hot summer sun will turn them into unwanted heat accumulators. If the local climate is hot all year round, place roads and paths as far from the home as practically possible.

Of all the materials we have at hand, Hydrogen is the most effective at absorbing heat. So it is lucky that we have so much of it available, in the form of H20. Water.

The same volume of water will absorb and store around five to eight times the heat that solid rock will.

So you may consider placing tanks of water as heat sinks, where the winter sun can heat them during the day. This heat will be naturally radiated out through the home or greenhouse during the night.

As we've seen, ponds and other bodies of water are great at producing warmer 'micro-climates', if planned correctly, to avoid heat and humidity loss from exposure to strong and/or cold winds.

Make a 'sun and wind map' of your property

Take the time to observe the behavior of 'the elements' on your property. These include factors such as frost, damp, sun, wind, and rain.

See if any trees on your property have become 'flagged' or 'bowed' in one direction. This gives you an indication of the strength and direction of the prevailing winds on your property. It can help you decide if wind power generation is likely to be an option for you or not. Wind power generation using a large turbine requires an average, sustained wind speed of around 20 km/hour to justify the investment, and meet your energy needs without the need to supplement them with solar power.

You can consult locals, and put up 'wind flags' around your property, to determine the prevailing wind directions and strengths. The longer the 'flag' remains stiff, the more enduring the wind. You can use flags of different 'weight' to determine the wind speed.

The chemical reaction known as photosynthesis is how plants convert the electromagnetic radiation of the sun into high energy, volatile compounds like ATP and NADPH, which the plant converts into relatively stable, transportable, and storable sugars. Many plants 'trade' these sugars with bacteria in the soil for Nitrogen.

We humans too require sunlight and sunshine for warmth, and a sense of well-being.

Taking these needs into consideration, we can optimize the benefits the sun can offer to our particular property, while minimizing the negative externalities associated with over-exposure to 'excessive' sunlight and heat.

Mark a position from which to mark the position of the sun at different times of the year. Where it rises from on the horizon. Where it sets. Note which parts of the property get direct sunlight, and which lay mostly in shade, due to the topography (hills and valleys).

Then take the notes you have made and start planning.

Find ways to reap the greatest benefit from the 'benevolent' forces present, while reducing the impacts of any less favorable, or even 'hostile' ones.

The most obvious orientation is 'solar'. Passive solar designs let you reap the most heat from the winter sun, while blocking the sun during the hottest months, helping keep you cool in summer.

Orient your home to take advantage of cool summer breezes, while blocking bitter cold winds. The same applies to the planting of 'wind-breaks'.

You can promote 'micro-climates' around your home, and gardens, which will make your daily life more comfortable, and energy efficient, while lengthening your growing seasons, and allowing you to grow 'out of area' crops that will astound your neighbors.

As a rule, wind tends to travel from water to land during the day, and then from land to water in evening. If you like your Latin, these are referred to as anabatic and katabatic.

Thus morning winds tend to be up-slope and up-valley in the morning.

And later in the day they tend to be down-slope and down-valley.

Consider this when planning the placement of ponds Vis a Vis house placement, to get the best 'evaporative air conditioning system' possible.

You can use windbreaks to stop very hot, dry winds, or very cold winds, becoming a nuisance. These might otherwise reduce your comfort and sense of wellbeing. Winds can actually literally drive you mad. So take care.

Trees and hedgerows can also act as privacy screens. Both in terms of visual privacy, and acoustic privacy. They can prevent noise you make from becoming a disturbance to your neighbors, and vice versa.

There is an art to creating the most effective wind-breaks.

One traditional form of wind-break is the 'hedgerow'. You can take almost any tree and 'bend it' so it grows laterally, rather than vertically. You make a cut on the side opposite from which you want to 'bend' the tree trunk, then carefully pull it down to the ground. It will creak and crack and break. But as long at least a thin strip of 'living' wood remains connected, the tree will not only cope with the stress of being 'fractured', but thrive.

You can then interlace the branches of neighboring trees into a fairly closely-knit 'hedgerow'. These soon become beloved habitats for birds and other animals. A 'safe-area' to escape from predators. An eco-system to themselves. A joy for bird fanciers and birds alike. Keep in mind that you will attract more birds if you plant watery fruit like crabapple, hawthorns, elderberries, chokeberry and plums in your hedgerow windbreaks. And these birds will bring seeds from wide and far, adding to the diversity and productivity of the hedgerows they 'visit'. Over time these seeds will grow into the next generation, replacing the trees you originally 'laid down' to form the hedgerow.

The lateral growth will make 'harvesting' any fruits, nuts, or berries all the more convenient for *you* as well.

There is an art and science to designing the most effective windbreaks.

An impermeable line of tall trees will simply deflect and re-direct the wind over and around itself. It will then continue on its way at pretty much the same wind speed, strength, and force, producing the unwanted effects the windbreak was supposed to prevent. At the same time, an unbroken line of trees is prone to low air circulation, and thus undesirable fungi.

What we really want in the optimal windbreak is to actually slow down the wind, and diffuse its force, strength, and power. To absorb most of its energy. So that we get a gentle breeze, rather than an irritating, damaging, gale.

So with this in mind we want to ensure the windbreak does not totally block the wind. It needs to be slightly permeable.

We can achieve this aim by planting plant multiple rows of trees, with a bell-shaped cross-section.

We will want at least 50% of the surface area facing the direction of the wind.

50% of the cross-sectional area of the break should be filled with leaves.

And then to encourage a cool breeze in the hot summer months, or simply to ensure good air flow around your home, to remove unwanted from composts and so on, you may decide to prune the lower branches of trees, and even create ‘channels’ through the wind break for cool breezes to flow through. Any wind will be naturally cooled and even scented as it travels through the forest, onto your home.

Once you have planned the actually design to ensure the final outcome is optimal, you will want to plan the actual planting of the windbreak or hedgerow.

You can increase the odds of each sapling you plant achieving maturity by preparing the soil well in advance.

Plant potatoes or other nitrogen fixing, ‘legumous’ plants on the site a year or so before planting your saplings. Chop and drop ‘green manure’ plants that have already pulled up nutrients and fixed nitrogen and stored these in their broad leaves. This way the soil will be more fertile, and offer your saplings the best chance to survive and thrive.

When it comes time to plant saplings, first break up any compacted soil below and around where the sampling is to be planted. Plant the sapling within this area, with relatively loose soil below and around the roots. Ensure the roots remain moist, and in the same position they were in in their pots, facing outward. Do not compress them, forcing them to face down.

Once the saplings are in place, tamp down the soil lightly around the sides of the sapling.

Then give the sapling a deep initial soaking. Then until the saplings become established, you should plan to water them every 10 days with about 3cm, until late summer. At this point you should stop watering them, to allow them to 'harden off' for winter. Then just before the ground is likely to freeze, give them one deep watering to hold them over until spring. Continue this until they become established.

Keep the area 50cm around each sapling moist and free from weeds for the first few years, until the trees are established. Manually remove weeds until you have established a ground cover.

Planting a ground cover like potatoes, not only restricts sunlight to weeds, preventing them from becoming established, and conserves moisture that falls as rain or morning dew, it also fixes nitrogen, improving the soil fertility. As the potato plant’s leaves dies and break down, they release vital nutrients into the soil. They will also provide habitat for precious soil micro-organisms that bring the soil to life, literally.

Remember to overplant saplings, to compensate for probably losses. You can then thin out the saplings, keeping only the healthiest young trees.

Make a 'topographical map' of your property

'**Swale**' is an Olde English term. The designers of the '**Village homes'** communities in California brought it back into usage. These communities were planned using the sorts of 'maps' we have just considered.

In these communities, homes were deliberately planned and built on side of small depressions formed to gradually soak up moisture from dew and rain, and trap any organic matter that was blown into it. These depressions also performed the function of storm-water drains.

Over time the depressions accumulated organic matter and moisture, and fruit trees were planted either side of it, so the fruit trees roots could take advantage of the moisture and nutrients accumulated there.

They grew almonds, grapes, and corn among the homes. Through traffic was blocked so that small children, animals, and even toddlers, could play safely. Bike paths were laid out.

The members of the 'village' could pick food from the trees and vines, or collect flowers from the gardens.

Rooftop herb gardens were established on many of the homes. These insulate the homes from heat and cold, making this otherwise 'wasted' real estate productive.

Steel tanks were placed on the 'sunny side' of the homes, inside the sun-facing rooms, and filled with the best 'thermal mass' available, water. These absorb heat during the day, and give it off during the night, maintaining a comfortable temperature through cold winter nights.

Deciduous vines were planted which would block out excessive, irritating summer sun, while allowing all the winter sun through. They also provide fruit such as grapes.

By 'mapping' the sun's movements across the sky, the homes windows could be positioned to exclude the hot summer sun, while taking advantage of the maximum winter sun possible. The sun is higher in the sky in summer, and lower in winter. So the windows designed to 'harvest' the welcome winter sun should be large and high, and the windows exposed to the harsh summer sun should be smaller and less 'tall'. Alternatively 'eaves' can be extended out the appropriate distance from the wall to block the sun when it is 'high' in the sky, in summer, and allow it through, when it is 'low' in the sky during winter.

To ensure your swales and swale-paths are level, that is, maintain a constant elevation (every point on any particular line is the same elevation), you will need to do a little 'topographical survey' of your property.

You will need to find someone to help, and to hire the sort of equipment you have probably seen surveyors using when preparing roads, or sub-dividing land allotments.

Topographical maps are maps drawn with lines joining points of equal elevation, known as 'contour lines'.

How close these lines are to each other on the map indicates how 'steep' the 'grade' of the terrain is. So lines far apart indicate a gentle slope or 'grade' between the two lines of elevation. And lines very close to each other indicate a very steep grade, between the two closely drawn lines of elevation.

The ‘top’ of a hill, ridge, or mountain will be shown as a small circle. This is the highest elevation in that area of the map.

Warm air will tend to rise as the day lengthens, producing a warm breeze flowing up any slopes. As the air cools, you will tend to get a cool breeze flowing down slopes. This means you are more likely to get frosts near the bottom of any slope, at the lower elevations of your property. So your topographical map can inform your planting choices. You will want to avoid planting frost sensitive plants at the lower elevations if these occur at the bottom of a hill. If the hill starts on a neighboring property, then you will benefit from the warm uphill breeze, and be saved such frost problems.

One way to negate this problem is to place a thermal mass like a pond, or stone wall, below the area you want to plant. You might even lay a lot of stones among your crops. The pond will absorb heat during the day, and release it during the night and morning. Remember that sunrise is generally the coldest part of the day, as the rising sun heats up dew, evaporating it, thus cooling the surface of the ground. This is when you are most likely to get frosts.

You will probably want to establish your first swales at the highest suitable points for them. Or in positions where they will naturally ‘back-feed’ your ponds and dams.

Then you will place successive swales at lower elevations at distances, correctly distanced so that each swale will be ensured full sunlight. How far apart the swales will need to be will be dependent on the topography and relationship to the sun, of each slope on your property. And on what sort of plants you intend to grow on each swale. Swales are favorite places to plant ‘food forests’, in which case you will want to avoid any ‘shadowing’ of the swales by the mature trees. Alternatively you can plant the swales with alternately different vegetation in these ‘shadow’ zones. Some plants actually *prefer* less sunlight, so do some research, and observe what thrives, where, on your property. You may also ‘dwarf’ the trees on alternate, to ensure each swale has the maximum sun exposure.

Every topographical map has a legend stating the ‘contour interval’. This states the actual change in elevation between any two ‘contour lines’ on the map.

To draw such a map you will need an elevation guide. You’ve probably seen people walking around with various poles and laser pointers, as part of what are called ‘survey teams’.

You would start at the highest point of elevation on your property, then step down a few steps, and walk in a rough circle, maintaining one elevation, using the elevation guide.

You would then take a few more steps ‘out’ from this ‘circle’, and repeat the process, over and over, until you arrive at the lowest point of elevation on your property.

You would then draw a map with a ‘key’ or ‘legend’ which states the elevation difference between any two of the contour lines.

Draw a compass pointing to magnetic north at the top.

Go online, or patiently record, over the course of the year, the position of the sunrise and sunset from one winter solstice (The origin of Xmas day) to the next. This is the shortest day of the year in the Northern Hemisphere. The Summer Solstice is the longest. In between these we have the Autumnal and Vernal (spring) Solstices. You can build your own sun-dial and Stonehenge, marking these important events.

You can then orientate your house to optimalise the placement of windows, heat sinks, ponds, trees, and eaves, to take best advantage of winter sunshine, and to avoid overheating in summer.

You can even plan your own rituals to greet the New Year, at the Winter Solstice, and the return of life at the Vernal (spring) Equinox. You can calculate where the sun will rise on these two mornings. Just like the original builders of Stonehenge.

Draw up a legend of icons for features such as sealed roads, dirt roads, paths, swales, buildings, ponds, dams, water tanks, and so on.

Observe all the natural phenomena that occur on your property. These include the main wind directions at different times of the day, and year. They can include observed water flows after heavy rains. You could include any bird migrations you have noted during the course of the year.

Swale paths

Plan any ‘paths’ you may need to get from one area of your property to another, without producing erosion. Remember that the steeper the slope of any path is, the faster water will travel down it, and the more damage it will do.

So keep any paths you design as level as possible. With as little slope as possible. This will mean that your paths will, as much as possible, move laterally across any slopes on your property, such as hillsides. You can plan ‘switchbacks’ to ‘crisscross’ up and down a hill. This will reduce erosion, and place less strain on any equipment or people moving along these paths.

Even better, if you design these paths with foresight and care, you can turn what would otherwise be unproductive, potentially erosion forming, damaging, paths, into very productive, beneficial, ‘swale’ paths. You will be taking a necessary evil and turning it into a positive boon.

Swale paths are paths cut into a slope at a constant elevation. In other words they are ‘level’ across their entire length. There is no ‘slope’ in the path. Thus any moisture that falls one or above them, will tend to soak into the ground along these level paths. To encourage the water to remain in this level area, soil and other organic matter is often taken from the up-hill side of the swale, and placed on edge of the down-hill side of the swale, producing a slight containment ‘berm’.

If you expect large rainfalls at any time, and thus the possibility of fast moving water travelling down a slope, you will want to set up ‘controlled’ overflows at strategic positions along the swale. These are carefully positioned and designed points where water can be allowed to continue down the slope, while limiting any potential damage from erosion. They will be formed of rocks which will slow down and break up any sudden rushes of water. Again the principle is to slow down water flows, and thus the ‘energy’ the water carries. These ‘run-offs’ are often surrounded by small ‘soaks’ to absorb more water than is good for the rest of the swale, but which can be ‘handled’ here.

The water ‘run-off’ may also feed a succession of small ponds, ensuring that water excess to one level of the slope finally finds a more permanent home where it becomes a productive asset, rather than an erosion and flooding liability.

As soon as any swale is ‘dug out’, it and its ‘berms’ should be planted with fast-growing ground covers to stabilize the soil, and prevent weeds taking hold.

Now you have managed the erosion threats.

But there is much more to be gained from your swale. For you can turn it into some of the most productive land on your property, by planting it with appropriate, productive and value-adding crops, bushes, and trees.

If you don’t intend using the swales as paths, the plantings ,may follow a similar ‘succession’ to the food forests elsewhere on your property, until finally you may end up with mature food-forests defining your swales.

If you intend using the swales as paths, you will probably limit the ‘succession’ to more ‘kitchen garden’ type plants that require little maintenance.

These plantings will thrive as the swales not only collect moisture, and allow it to percolate deep into the soil, where it can be stored and accessed by plants during drier periods, they also tend to trap and collect organic matter that will break down and release nutrients into the soil.

With the careful planning and execution of swale paths, you will have added paths, erosion controls, and simple water features, while increasing the productivity of your property.

You may also add new water tables to your property. As water soaks down into the swale, it often meets impermeable rock layers where it begins accumulating. It can then ‘spring’ up lower down the slope.

If large branches fall from nearby trees, relocate them to positions below or on the berm of the swales, as ‘traps’ for organic matter, silt, topsoil blown on the wind, moisture, and habitats for lizards, frogs, and mushrooms.

The placement and management of ponds

Once you have set up water collection and storage tanks next to your home, to meet your immediate water needs for drinking, cooking, and washing, you will want to add value to your property by adding ponds.

Water in general adds value to your home and land. It meets your personal needs, and allows you to irrigate your kitchen garden and other crops.

Plan your roof for optimal rainwater collection, and place your water tanks as high as possible relative to where you want to finally ‘use’ that water, to ensure high water pressure, without the need for pumps, or windmills.

But ponds add another level of value altogether, well beyond simply the ability to irrigate crops. In fact ponds, per square meter of area or meter of ‘shoreline’, will become the most productive elements of your garden, if planned and managed with a little forethought and creativity.

The ponds should be planned and managed a little, to ensure a variety of habitats and 'safety zones', such as fallen logs, for fish, ducks, geese, lizards and frogs, which will provide free pest control services.

Include 'ladders' that will collapse under the weight of any predator, but allow our 'gardening colleagues' to pass to safety. Or build see-saw 'bridges' between the ground and a 'box' or 'safe zone', on some kind of fulcrum. The wider the surface area of the fulcrum in contact with the base of the bridge, the greater the weight it will be able to sustain before 'see-sawing'.

You will want to join different elevations by gently graded 'wetlands' to calm and pacify any water as it flows and drains from higher to lower elevations. Catching it at as many different elevations allows you to make the most use of it, before it leaves your property.

Ponds will naturally attract all these desirable predators. Predators which will also poop and pee in your pond, providing free bio-available, liquid, fertiliser (phosphates and nitrogen). Pond water can quickly become nutrient rich. These nutrients can come from animal droppings, and the extensive array of marine life and microbial organisms that will come to inhabit the pond.

Add to this the natural leaching of water soluble nutrients from the surrounding soil, and organic matter that will tend to be blown and washed, and naturally trapped, to rot and decay, in and around the pond, and you will quickly see what an asset a pond can quickly become. Every organism, vegetable and animal, that lives and dies in the pond, will add to its value as a source of liquid fertiliser.

And if you place the ponds at a higher elevation than your gardens and crops, you can allow gravity to transport this precious liquid fertilizer to where it is needed.

The ducks that come in spring and leave before winter, will also provide free pest control, as they stroll through your gardens eating up harmful insects and other pests, and converting them into valuable fertilizer.

Ducks will arrive just when they are needed, like free seasonal labor. Unlike chickens, they won't require 'board and lodgings' over winter. Think of them as 'working for board and breakfast'. They will also provide a splash of color, character, personality, and entertainment.

Ducks will solve any slug problem you have.

The trick to working with ducks is to keep them away from gardens for first 3 weeks or so of your growing season as your plants are sprouting and establishing themselves. You can make moveable fences out of chicken-wire for this and similar purposes.

White Chinese geese also make great pest control colleagues, and will eat weeds. However, if you keep them, like chickens, they will require feeding over the winter months in colder northern climes.

If you have a slug problem while your ducks, chickens, and geese are being excluded from your young seedlings, go out at night when the ground is still wet and 'repatriate' the slugs somewhere they can't damage your garden. This is one reason why it is advisable to plant your kitchen garden close to your kitchen, where you can keep an eye on it. The closer it is to your house, the more convenient it will be for daily inspections to remove pests like slugs, bugs, beetles, snails, and so on.

This is a basic principle of a well-designed garden. Keep those plants that need the most attention closest to your home. Plan with this priority in mind. Ideally you'll plan the location of your home, ponds, and gardens, all at the same time, to optimize the possible benefits, and minimize the possible costs, associated with the location of each, vis a vis the others.

You can soak mushroom logs in your ponds, providing an extra crop of tasty calories and nutrition, and/or a barter-crop or cash-crop to sell or trade for things you can't grow on your property.

Ponds can also be used to create their own micro-climates. Observe the dominant wind patterns. If you can find a place sheltered from the cold wind, but exposed to the sunshine (free of trees blocking the sun), you can maximize the 'heating' potential of ponds.

Ponds absorb heat during the day, and release it during the night, moderating temperature fluctuations in the immediate vicinity. They also reflect direct sunlight. You can 'aim' this sunlight to direct it onto crops that need this warmth. If you are still planning your property, keep this in mind. You can move the pond, or the crops, while at the planning stage. Once you have one, or both, established, it can become an expensive exercise to re-locate at least one of them.

Ponds also produce areas of increased warmth and humidity. If you placed the pond in a relatively 'sheltered' area (not exposed to wind), this humidity will be trapped, and can be used to your advantage.

Lotus plants are just one of the aquatic plants that love the warmth and humidity of such micro-climates.

Aquatic plants are among the most 'productive' plants you will find, in terms of 'yields'.

They 'yield' food crops and 'chop and drop' 'green fertiliser' crops.

For example seaweed, high protein Canadian pond weed and comfrey, (which has sterile seeds so it won't become a pest), and nettles, all make great liquid fertilisers for your kitchen garden. Simply cut them near the base, and place them in a black barrel in the sun, or near warm compost. In about a month you can cut holes in the bottom and drain out the black liquid fertiliser.

The general rule is that the edges of any system tend to be the most productive parts of any system. This is as true for the artists, writers, and thinkers who thrive on the 'fringes' of society, as it is for a forest, or a pond.

In fact the most generative – creative –fertile – innovative – artistic cultures tend to grow up at cross-roads on trading routes, and along the *borders* between different cultural groups. This is where you see the most diversity, the greatest exchange of ideas, the highest levels of technology, and the greatest social achievements. The people living close to different cultures are often invited, or forced, to challenge their own preconceptions, prejudices, and belief systems. They are lead in these ways to reconsider their conditioned, imprinted definitions about everything from diet to clothing to ethics.

Living on the 'fringes', tends to encourage us, even force us, to become more 'independent' of the wider society, not just in terms of food, shelter, medicine, and clothing, but also in terms of basic mentality, lifestyle, and approach to life. The wider society trends towards centralization and homogeneity. The fringes tend towards individuality, variety, and greater freedom of thought and action.

So aim for the maximum 'length' of pond 'shore-line', by adding lots of curves. Think 'Norway'. The more complex the edges, the more 'edge' available, and thus the more 'productive' the pond will be, in terms of the variety and size of habitats it offers for aquatic plants, aquatic animals, and animals and plants that thrive along the 'shores' of ponds.

However don't limit your thinking to plants that actually grow in the water itself.

A well situated pond can create a micro-climate *around* the pond itself. For example sunshine will be reflected off ponds and other still water bodies up onto the surrounding uphill areas. Heat and humidity will also rise up to these areas. In this way you can generate enough heat and humidity to grow a cherry tree, or other valuable crop that would otherwise never thrive in your location.

You will get a relative warming extending up the hill from the pond. So plan successive 'terraces' of plants with this in mind. Each succeeding 'terrace' up the hill will benefit from the terrace below it. In this way you can 'harvest' the heat and humidity in successive 'micro-climatic terraces'.

Plan 'wind-breaks' where they won't block the sun, but will filter out strong, especially cold, winds.

You can use these facts to extend growing seasons, or to allow the planting of crops that would not otherwise survive your general local climatic conditions. Keep the potential for 'constructing' such micro-climates in mind especially if you are still in the design stage of your property.

Another benefit from 'sheltering' your ponds from winds which would otherwise take away heat and humidity, is that your ponds will naturally 'oxygenate' as winter ice melts, producing an exchange of gasses, resulting in oxygen being literally sucked (you can often hear the sucking noise during spring thaws) into the pond water. The water takes up the oxygen, making it available so that even fish such as coy can thrive.

Of course is extreme heat is your problem, the pond will tend to moderate all extremes of temperature, and placing a pond upwind from your home will offer relief from extreme heat during summer. You will have a free evaporative cooling system, as the pond water evaporates, cooling its surface, and thus cooling any breeze that passes over it.

There are also wide range of aquatic vegetables and other productive, valuable crops. These tend to grow faster, and larger, than anything you could grow on the land, in the same area. These can be 'chopped and dropped' like any other foliage, to provide mulch, ground cover, and nitrogen rich nutrients.

Lotuses are a favorite. For their beauty during their flowering season. And for their tubers, which can offer a healthy and nutritious addition to your diet. Wait until after the leaves have fallen off and the plant has become dormant. Dig out the clumps of tubers. Then divide and thin out the tubers using a sharp knife to separate them. Harvest only the older, mature tubers. Replant the younger, healthier looking tubers to become next year's harvest. Clean the tubers, and store them in a cool, dry place. For convenience of harvesting, you can place pots in the pond, and plant the lotus tubers in these pots. Then all you need to do at harvest time is pull up the pots.

Ideally you will want to keep water aerated for a number of reasons. To allow aquatic plants like lotuses to thrive. To allow for fish and other aquatic animals. And for mosquito control. To achieve this, simply build a number of shallow 'splash pools' along the routes between your water supply and the ponds, and between the ponds.

You will probably have a system of different sized water catchment, containment, and exploitation areas.

If you have clay soils, you can form the base of your pond simply by compacting the soil. Otherwise you can use simple heavy duty plastic sheeting, held down by logs and rocks placed around the edge, while you wait for rain to fill the pond.

Some popular plants for the edges of ponds include mints, blueberries, elder, alfalfa, herbs, bulbs, comfrey, pecan, mulberry, taro, and arrowroot.

In the pond shallows consider growing wild rice, water cress, marshmallow, and water chestnut.

In the first 30 to 60cm plant reeds as habitat for small fish, and shelter for ducks. These can also be used for mulch, crafts, and building materials.

You can increase the ‘edge’ and thus the effective productive surface area of a pond by adding half submerged tree stumps, boulders, and the like.

Avoid planting trees anywhere close to dams, as their roots can penetrate dam walls, basically undermining them, and leading to their ultimate collapse. Instead stick to bamboos and shallow rooted plants.

Kitchen gardens

Your kitchen garden is where you will grow all the vegetables, herbs, and spices you will use in your cooking.

Ideally it will begin right under your kitchen and living area windows, so you can keep an eye on it. It will require the most attention of all your ‘Eden Gardening’ elements.

So it is great to be able to see if unwelcome guests like slugs, snails, and other ‘pests’ have arrived. With the kitchen garden just a few steps from your home, you can quickly and conveniently issue them with ‘move on’ orders. Simply collect them and remove them to somewhere they won’t be a nuisance to you, or a threat to your garden. You are, after all, the garden’s caretaker. So this sort of ‘security’ detail will form part of your regular duties.

You can remove pests before they do any damage, simply by picking them up and moving them ‘off-site’. No, not a ‘dark site’ where they can be tortured and killed, but simply some part of your property where they won’t do any harm.

As soon as cabbage worms, the little green caterpillars which later become white moths, appear, they can be removed by hand. However if you are growing large areas of Brassicas such as kale, broccoli, and cabbage, and have other pressing duties to take care of, you may choose instead to apply an organic farming approved bacterial spray to kill these worms.

Harlequin bugs are shiny orange and black beetles that resemble lady bugs. These can be removed by hand.

You can also plant habitats for the natural predators of the insects that would otherwise prey on your plants. These include lizards, birds, praying mantises, and other predatory insects.

Ideally you will have recruited a 'militia' of seasonal security guards, ducks, to carry out most of these security details. As long as you offer them suitable board and lodgings in the shape of ponds, they will appear magically just when you need them most, and then leave before the winter, demanding nothing of you, and giving freely of their 'labor'.

To ensure that your ducks and other garden helpers don't accidentally damage young plants, keep a moveable fence of chicken wire on stakes handy, to 'cordon off' temporary 'no-go zones'.

If you do decide on more permanent fences around the garden, so you can control the entry and exit of visitors, including your 'duck militia', then use this fence as trellises and stakes for 'vertical gardens' of tomatoes, beans, peas, and the like.

This guide will also cover '**espalier'** plantings of fruit trees on such fences and walls.

Once you have designed your kitchen garden, begin planting fast growing, broad leafed, deep tap-rooted plants along the borders. Plants like comfrey and elecampane. These will be able to access moisture and nutrients deep in the soil, and provide a barrier to prevent weeds invading your kitchen garden. These plants will store these valuable nutrients in their leaves.

Fill an old bathtub with comfrey leaves, covering them with water, then cover the tub with black plastic. Let it steep for about 3 weeks until it starts to stink. When you uncover it you will find a sludge that you can dilute with water and apply directly to plants as a liquid fertiliser.

By the time your kitchen garden has been established and planted, these plants will provide an immediate supply of 'chop and drop' mulch. The nutrients stored in the leaves will become available to your kitchen garden plants as they break down.

Such deep rooted plants can safely be planted among your kitchen garden plants, without competing with them for moisture or nutrients, due to their deep tap roots. Just take note of any competition for sunlight. In this way you can grow 'green fertiliser' and 'mulch' 'on-site', very close to where it is most needed and most valuable.

Comfrey can be 'chopped and dropped' up to 4 times a year, while elecampane can be harvested in summer and then autumn, or you can wait until autumn and do just the one big harvest.

If you have deer, or other wildlife that might fancy a night out at your vegetable patch, and you don't have dogs to deter them, you may need to put up a fence around your vegetable gardens.

If you have goats on your property, consider growing 'goat proof fences' out of the few close growing / 'clumping' shrubs and short trees that even goats won't eat.

Planting in mounds, raised beds, and stacked-automobile-tire-cascades

A more recent adaptation of the Milpa system are the use of raised beds and 'mound gardens'.

Raised beds make planting, harvesting, and pest and weed control and removal, more convenient and comfortable.

This will be your 'kitchen garden', so locate it close to your kitchen, and in a spot with full exposure to the sun. Most of your kitchen crops will require direct sunlight. This will also prevent and reduce possible fungi problems.

By keeping every part of the garden accessible, and easy to reach, from the pathways, other edges of the garden, you will avoid compacting the soil.

Plant herbs among your kitchen garden vegetables, as 'companion plants' to ward off insect predators, and as 'condiments' for cooking.

The simplest 'mound' can be made by burying old wood and compost under a mound of soil. You then plant into this soil. The wood and compost beneath will slowly decompose, providing a natural source of warmth, a 'micro-climate', that can be used to prevent frost damage, extend your growing season, or to try out crops otherwise not suited to your general climatic conditions.

If you are willing and able to invest more in your raised beds, you can build walls of wood, to contain your raised garden. Be careful with railway sleepers, though, because they have been treated with arsenic and other toxic chemicals to prevent them rotting. The same problem of course applies to any 'treated' wood products.

By careful forethought and design, you can reduce the amount of wood used for the raised beds, and maximize the raised beds total volume. If using any form of irrigation, you will also reduce the length of tubing required.

For example, by simply joining two rows at one end, to form a single 'U' shaped row, you increase the productive surface volume of your raised bed, and reduce the amount of wood used in building it. Simply as each 'end' requires additional wood. Also the 'path' between the raised beds is unproductive. Irrigation tubing will need to extend over these unproductive distances, increasing your final tubing needs, with no additional benefit.

By becoming even more imaginative, you can end up with 'spirals', with sections of the raised bed lowered and thinned along a line from the center, to the outside ring, allowing you to easily 'step over' the continual line of raised bed at these points, to enter and exit the garden quicker. You can plant low-growing herbs and other plants in these 'lower' parts of the single, continual, raised bed.

That said, you may find it an advantage to force caretakers to have to walk the entire length of the raised bed to enter and exit the garden.

Remember that old apple grower's trick. Apple growers only cared about quality. They would send only the most appealing apples to market. The rest they would turn into apple juice and/or cider. So they would instruct their pickers to 'filter' apples for damage *and* size, even though they were only interested in filtering out *damaged* fruit. The fruit pickers, paying much more attention now, to filter out for size as well as damage, tended to spot more of the damaged fruit than they would otherwise have. The different sized apples would end up being shipped in the same crates, however with much fewer 'damaged' fruit than otherwise would have been the case.

By being forced to walk back and forth along the entire garden, each time they enter and exit, the caretakers are more likely to notice any weeds or pests as they make their progress. They can then remove or pull them as they proceed. Pests and weeds that otherwise might have escaped their attention.

Carefully plan and stake out your raised bed design during the times of the year when you have less work to do. Decide what you will use to cover the base of the beds with. Cardboard, old carpet, and old newspapers are just some options, which will prevent any plants or seeds already present from growing up into your raised beds.

But leave this heavy work for those times of the year when this sort of heavy work is most convenient. If you live in very hot climates, this may be the cooler times of the year. In colder climes it might be during the warmer times of the year. You won't have to dig through thick ice, and handle equipment wearing thick gloves.

First lay out the 'plan' for your raised beds, to make sure your beds are not wider than twice the distance you can reach. This is to ensure you can easily reach the middle of the beds from either side.

Next dig out the topsoil from where the paths between the beds will run. You will add this to your raised beds and mounds once you have constructed them. You don't want to waste this precious topsoil for a path. Later you will cover the paths with sawdust to deter pests like slugs and snails, and to keep the paths relatively stable and dry.

Once you have built your raised beds, fill the bottom with wood and other compostable materials. Then fill the rest with soil and compost. Finally place cardboard over the top layer. On top of this cardboard place loose straw. This is to act as a barrier to prevent any 'weed' seeds from sprouting. You will cut holes in the cardboard to plant seeds or seedlings in the raised beds. But before you do, consider whether you may want to remove this thin top layer of cardboard and straw for a few days, before planting, to allow the sun to warm up the soil. You will then replace it, and cut the holes for planting, leaving enough space in the straw for the seedlings to sprout.

If you don't have hay handy, use whatever you can scrounge up on the site, such as paper, woodchips, soybean hay, or even dried grass clippings if there are no seeds present.

The wood and other organic material you filled the bottom of the raised bed or mound with will generate heat as it breaks down, providing a microclimate for seed germination, and for growing plants otherwise 'exotic' to your local area.

If you plant beans and other legumes in each raised bed, they will enrich the soil with nitrogen. And when you harvest your leafy crops, remember to cut them off above the soil, leaving the roots intact. Soil microbes will convert the roots into nitrates, adding to your soils fertility and productivity with each successive harvest. But to reduce your weeding problems with each passing season, remove all the roots of any weeds.

Raised beds are just one part of a whole range of ‘no till gardening’ practices consistent with ‘gardening’ Vs ‘farming’.

We shall discuss the concept in detail in the chapter on the most famous ‘guru’, and some even say ‘founder’ of the idea. His name has become synonymous with ‘no dig’ gardening. His name is Fukuoka. Consider him our Zen gardening master.

An alternative to building a raised bed with wooden sides, is to use car and truck tires. These have proven a real challenge in terms of waste disposal and recycling. So any idea that can turn such a liability into an asset is welcome.

Some very talented and creative artists have turned car and truck tires into works of art. Often in the form of ‘garden’ art. This option turns them into actual *gardens*.

Mark the spot where you want to build your first ‘stack’. Stack the tires to the desired height. Fill the stack three quarters full with compostable materials, before adding newspaper or some other barrier to stop any weed seeds in that compost from sprouting. Then add the layer of topsoil you will be planting into.

As the compost breaks down, it will generate heat, to help germinate seeds, and protect seedlings from frost. Take advantage of this ‘micro-climate’ to extend your growing seasons, or plant crops, such as delicious melons, that would otherwise never survive your local conditions.

One way to set up a sweet potato patch is to place some old newspaper at the bottom on an old car or truck tire to prevent weeds sprouting through. Place some sweet potatoes on this, then cover them with compost. As the potatoes sprout, and grow over the sides of this tire, place more tires lined with newspaper and full of compost around the first, to accommodate the new side-shoots.

You can take old pipes and turn them into ‘hanging gardens’ along walls. Just cut them laterally, to form two ‘U’ channels, or fill them with soil or potting mix, and cut out holes to plant into, and allow plants to grow ‘out’ of.

Whatever you plant, how, and where, it is a good idea to either draw up a map of your garden, so you know what you have planted, where, and when. You can keep a history of what plants did well, where. You can keep records of what particular mixes performed the best. You can collect seeds from the most adapted plants and build up a local ‘seed bank’ of locally adapted plants. These records will help identify any pest or disease problems that might arise from time to time. You can experiment with different ‘guilds’ and ‘companion plants’. You can treat your own gardening experience as scientifically ‘Zen’ as Fukuoka. And much more scientifically than any industry funded, corrupted, gagged, careerist plant researcher or academic.

You can place notes in plastic or glass jars around the garden, and make plant tags out of used plastic containers you can cut up and easily write, with ink pens, on. This is a good way to build up your knowledge of plant names. To learn to associate the often hard to remember names with the actual physical plants growing in your garden.

If you have cats, and they decide to start using your raised beds as heated kitty litter trays, you might consider laying chicken wire over the plant beds. The same would be a good control for ducks, chicken, and geese. The wire would preventing these fowl from being tempted by the fresh, young, juicy, tender, succulent seedlings, and focused on eliminating slugs, snails, and other plant predators from your garden paths and gardens..

Finally, consider how it perhaps may be a good idea to avoid growing the same crop in the same place, over and over. This crop will be ‘feeding’ on the same nutrients for all this time, and may deplete them, or produce other sorts of imbalances in the soil such as ph. So it may be a good habit to ‘mix it up’ a little with some new and unusual crops every few years, as a sort of ‘a change is as good as a holiday’ for your soil.

Legumes and Nitrogen

The mineral element that living organisms require in the largest amount is Nitrogen. Nitrogen is necessary for building proteins, and DNA. The availability of nitrogen is a key limiting factor to the health and productivity of most ecosystems on earth. Therefore adding nitrogen usually stimulates an increase in biological abundance.

The important of nitrogen to all living things explains the attraction of insects to nitrogen rich plants, and compost heaps.

Plants get the Oxygen, Carbon, and Hydrogen that make up the bulk of their mass from water and atmospheric gases. This is where they get the materials to build (using solar energy for the bio-chemical conversion, known as ‘photosynthesis’) carbohydrates (sugars) from. They mine the 3% of minerals that make up their mass from the soil. These are processes that all plants share in common.

What varies between plant species is *how* they get access to the last vital element of plant life. Nitrogen. Plants derive their proteins from nitrates.

Ammonium nitrate (NH4) is what makes human and other animal wastes stink. It is what makes urine stink. But what is waste from a human point of few, is manna for plants.

Nitrogen is so key to plant life that, over millions of years, around 600 plants in regions with nitrogen-poor soils, have evolved ways of securing their nitrogen by trapping and digesting insects and other small animals.

Animals either get their nitrogen from plants, or from predating on other animals that got *their* nitrogen from plants.

Plants of the ‘pea’ family (Legumes), on the other hand, have evolved a symbiotic relationship with particular soil bacteria collectively known as ‘rhizobia’. They engage in a sort of trade deal, whereby the plant roots ‘host’ the rhizobia, and supply carbohydrates (sugars) and other nutrients, in exchange for nitrogen that these rhizobia ‘fix’ from atmospheric nitrogen. Think of it as providing room and board in return for light duties.

Some woody plant species enjoy a similar symbiotic relationship with soil bacteria of the genus 'Frankia'. Some Bacteria, and Blue-green algae, also convert N2 into NH3.

Other plants are dependent upon nitrogen released as the green leafy matter dropped by other plants breaks down and decomposes. And upon animal droppings rich in nitrogen.

The use of legume crop rotations represented one step up our agricultural evolution from simply leaving land 'fallow' during rotations. Fallow land improved due to weeds and other plants drawing up minerals from deep in the soil, then dying, depositing those minerals in the soil, along with the nitrogen stored in their green leafy matter. It also benefitted from animals grazing, and contributing to the soil fertility by way of their droppings.

Over time some farmers observed that the fallow land that naturally contained particular plants we call 'legumes', proved to be more productive than other fallow fields, when those fallow fields were rotated back into production.

So sooner or later, a 'Fukuoka' type began deliberately sowing legumes in their fallow fields, as an experiment. One which proved successful.

Then during WWI a German scientist got the credit for being the first to successfully 'fix' atmospheric nitrogen in the laboratory, and then factory. Nitrogen for fertilisers, and of course explosives, at a time when the illegal WWI blockade of Europe by the British (a violation of the 'freedom of the seas', international law, and a war crime, which the U.S.A did nothing about) made German imports of saltpeter (Sodium Nitrate) from Chile impossible.

While about 78% of the earth's atmosphere by volume is the noble/inert gas, molecular Nitrogen (N2), converting this into Ammonium into the more reactive forms of nitrogen required for use in fertilisers requires massive inputs of energy to break the exceptionally stable / strong covalent bond, and produce the more reactive forms of Ammonia NH3 and Nitrate NO3.

To give you an idea of how much fossil fuel energy goes into the manufacture of artificial nitrogen fertilisers, consider the 'Haber-Bosch process'. Nitrogen N2 is simultaneously subjected to temperatures of 400 to 650 degree Celsius and pressures of 200 to 400 atmospheres, and a metal catalyst such as Iron. The result is Ammonia NH3.

Of course, in 'modern' agriculture, most of our commercially grown crops have become totally dependent upon such artificial petro-chemically produced nitrogen fertilisers. If and when we run out of fossil fuels, we will run out of this source of nitrogen. Our infertile, barren soils will cease to produce crops. Our food supply will be devastated. Society will collapse into chaos and violence

One of the footnotes of the unwritten history of WWI and WWII is that the Germans were always acting in response to the illegal actions and war crimes of its enemies. But of course history is written by the 'winners', and the war time propaganda ends up as official 'history'. The truth be damned. So what was a reaction, is written up in history as the action. The provocation of the action is left out of history. So the Germans always appear to be 'behaving badly', out of some innate, 'Germanic' drive to destruction and violence. THAT is the true hate crime of the 20th century that has been continued into the 21st Century. But it continues to be censored, and replaced by the traditional 'fake news' we call 'history'. So while everyone knows about the German WWI submarine blockade of Britain, and the sinking of the Lusitania, as part of this, almost no-one knows about the reasons for it. And few of those people will ever report it.

They will instead go along with the Zionist 'Jewish' demonisation of Germany. This began at the time of Bismarck, continued throughout and after WWI, and then throughout WWII, to the present day, with signs of strengthening, rather than relenting. The only change in the mix has been to add Islam and Arabs to the list of demons. The propaganda destroyed Germany. It is now targeted at the Arab nations.

The Jewish colleagues of the German 'Jewish' scientist who first synthesized Nitrogen in response to the British blockade of Europe would have been aghast. For only a few years later it would be the 'Jews' who would effectively put in place an international trade boycott of Germany, denying it access to international markets for its exports, thus denying it the ability to sell goods and services to pay for the import of the food and other raw materials Germany needed to simply survive, let alone develop and prosper. At the time of this 'boycott', many British and U.S leaders feared that Germany would collapse inside two years, into starvation and chaos, if that boycott remained in place. It was that effective. If you doubt a relatively small group of people can conspire effectively against entire nations, then you should review the facts of history. Not the 'official fictions' offered in the 'Jewish' controlled academic papers and history books, the Jewish controlled mass media, in Jewish controlled publishing, and last of all not in the Jewish owned and controlled Hollywood movies. I will probably be forced to edit out such 'facts' from this book, to prevent it being 'blocked 'and 'banned' as other books of mine already have been, for demonstrating, and clearly proving, such facts.

But there is no point in helping slaves merely survive, simply to serve their masters. Better to die quickly and with dignity, than endure a life of abject slavery and misery, under the delusion that you are 'free'. Or more to the point, you have a right to decide for yourself. To give your informed consent. Or withhold it. But to give, or withhold, your informed consent, you first need to be informed. Which is all I can do for you. I don't have magical powers, let alone the economic and military force it would take to take back our occupied nations from the Zionist 'Jew' world order occupation. What irks me muchly is that the 'Jews' want to pretend you have given your consent, based on their mis-information. So they can pretend, as their Torah claims, that you, the 'Gentiles', have willingly asked the 'Jews' to be your slave-masters, the 'judges' of what is best for you (service and submission to them), your 'gods'.

But back to legumes. You will discover, as you read this guide, that the ideal garden has these plants growing everywhere. As crops. As ground cover. As 'soil fertility rejuvenation and repair' technology.

Allelopaths

About one percent of the human population is considered to be 'psychopathic'. Around 4% are considered 'sociopathic'. Basically these people end up as Banksters, corporate ladder climbers, and military-industrial complex managers. They are unlikely to find any attraction in 'gardening'.

But there are plant-versions of these 'pathological' types, known as 'allelopaths'.

Allelopathic plants produce chemicals known as allelopaths. These allelopaths actively prevent other plant species from up-taking nutrients present in the soil. Basically they are the Banksters of the plant world. Rather than limiting money supply, they limit nutrient supply.

These allelopaths are particularly pesky, as they remain active in the soil long after the plant itself has died. They also leach out of the dead plant itself into the soil, adding to the allelopathy load the plant produced during its lifespan.

However within about three years, these allelopaths will have naturally biodegraded. About the time it would take for the U.S.A to recover from the Central Banksters after U.S citizens got together to shut down 'The Fed'.

The more common 'later stage' allelopathic plants include black walnut, poke weed and buttercups (Ranunculus species).

However just after a natural disturbance such as fire, many of the weeds that establish themselves and thrive, do so because of their allelopathic nature.

For this reason it is often a good idea to treat all weeds that appear in your garden as allelopathic. Not only will you catch the ones that are allelopathic, you will avoid weeds re-seeding, if you follow a few basic precautions.

Carefully pull all the weeds you find, ensuring you don't scatter any seeds. Destroy the plants and seeds by burning, or via 'hot composting'.

Note that the term 'non allelopathic' more or less means something has no impact, and is thus 'neutral'.

Fukuoka's 'no-till' approach, and his very Zen 'One Straw Revolution'

Masanobu Fukuoka was a Japanese microbiologist, farmer, and Zen practitioner. He spent the last 50 years of his life, since 1937, observing and experimenting. The result was perhaps the greatest single reform of agricultural practices of the last few decades. A potential revolution, in the true sense of the word, bringing us back 360 degrees, to the start.

For until around 300 years ago, no Japanese gardener would ever have had the strange 'western' idea of 'tilling the soil'. There were no 'plows' in Japan.

In fact these 'ancient' Japanese have since been validated in their traditions by 'modern' scientific research which shows that tilling the soil, breaking it up, and exposing it to the elements, the weather, blasting-freezing-drying winds, water flows, and scorching sun, actually damages the soil, reducing its fertility, and often leading to erosion.

Once the damage is done by tilling, that damage has to be repaired by expensive interventions like fertilizer, and erosion controls. It will require ever increasing 'work', 'attention', and 'intervention' to remain productive.

These are just some of the scientifically validated conclusions published in the 1978 book 'The One Straw Revolution'. The author, a Japanese farmer and researcher by the name of Fukuoka, wrote based on decades of Fukuoka's personal experimentation, is consistent with research done by the Japanese authorities.

Fukuoka also demonstrated that by maintaining a balance of plant predators, such as leafhoppers, and predators which prey on those pests, such as spiders, he could keep the numbers of plant pests down to the same levels as those achieved by farmers using expensive, dangerous, chemical pesticides. In fact those chemical pesticides tended to reduce the natural spider population, essentially killing off allies, and making even more work for the farmer in controlling the leafhoppers.

Fukuoka's work is all about regaining the 'natural balance' of things.

In this case the balance of spiders to leafhoppers. However the insect predators and pests may change each year. For instance in Fukuoka's case, one year it would be spiders keeping his leafhopper pests under control, and the next it might be frogs or toads.

Fukuoka is a genuine Zen practitioner. He allows reality to impress itself upon him, rather than impose his 'conditioned' definitions upon nature.

Most 'scientists', however, see the world from a very conditioned, narrow perspective, called a 'specialisation'. They are too narrowly focused. They impose the very narrow definitions they have learned within their specialty, upon the world as whole. As if the world could be reduced to its parts, and still comprehended in any meaningful way.

As Fukuoka states clearly 'An object seen in isolation from the whole is not the real thing'.

It is like listening to a new piece of music one note at a time. With gaps of 5 minutes between each note. Try that, and see how long it takes to 'get' the melody.

Fukuoka, like any truly 'creative' person, applies generative thinking, with an open mind that has 'suspended (pre) judgement'. He makes no assumptions. He remains skeptical of anything he might feel he already 'knows'. He remains open-minded, and allows reality to impress itself on his open, calm, receptive mind. He anticipates having his prejudices challenged by experience. He is thus quick to allow experience to inform, and thus change, any tentative opinions he has already formed about anything.

He avoids the typical human trap of early success in one area being applied in another area where it is no longer applicable. Early success often imprints or conditions us to repeat an action, and then overlook the negative feedback reality gives us, simply as it is not what we expected. Not consistent with our conditioned and imprinted model of the world. Our noetic structure. Our belief system. Our 'education' and 'training'.

In comparison with this, the very Zen Fukuoka had a history of positive experience with putting ashes on his kitchen garden. He would make a compost of wood ashes and organic kitchen wastes, and apply it to his kitchen garden, with great success.

However when he applied the same, previously successful practice on a large scale, to his field crops, within a few days all his fields were devoid of spiders. The ashes had caused all the spider webs to disintegrate. Leaving the leafhoppers free to reproduce to plague proportions.

These spiders are like many of nature's mysteries, which the human mind may never be able to comprehend. It is not known where they come from, how they survive the winter, or where they go when they disappear. The humble Zen practitioner makes no assumptions. They 'try and see'. They remain skeptical of any claims of 'knowledge' about the world around them.

The yields of Fukuoka's farm constantly outstripped those of the rest of Japan, no matter how intensively other farmers applied all the most 'up to date' and 'expensive' methods, techniques, and chemical fertilisers and pesticides. He thus contradicted the 'modern' notion that 'high tech' is best.

'Make your way carefully through these fields. Dragonflies and moths fly up in a flurry. Honeybees buzz from blossom to blossom. Part the leaves and you will see insects, spiders, frogs, lizards and many other small animals bustling about in the cool shade. Moles and earthworms burrow beneath the surface. This is a balanced rice field ecosystem. Insect and plant communities maintain a stable relationship here. It is not uncommon for a plant disease to sweep through this area, leaving the crops in these fields unaffected. Now look over at the neighbor's field for a moment. The weeds have all been wiped out by herbicides and cultivation. The soil animals and insects have been exterminated by poison. The soil has been burned clean of organic matter and microorganisms by chemical fertilizers. In the summer, you see farmers at work in the fields, wearing gas masks and long rubber gloves. These rice fields, which have been farmed continuously for over 1,500 years, have now been laid waste by the exploitive farming practices of a single generation'.

Fukuoka's 'Principles of Natural Farming'

Leave all the 'digging' and 'ploughing' to the plant root systems, worms, and soil micro-organisms.

Avoid any sort of cultivation that breaks the soil surface, or compacts the soil. Plowing is like cutting a gaping wound in mother earth.

Do not attempt to 'heal' such wounds by the application of artificial chemical fertilisers, or even 'prepared' composts, in an attempt to make up for the fertility lost by your plowing and soil compacting.

The best way to add nitrogen and phosphates to soil is by growing legumes like white clover that fix nitrogen, returning the straw to the fields after harvesting and threshing of the grains, and adding whatever manure you have at hand.

Fukuoka considers weeds to be an essential part of the 'balancing act' of nature that allows soil to not only maintain its fertility year after year, but continually improve it.

So Fukuoka would never manually 'pull' weeds, or apply herbicides. He will use straw mulch and ground covers like white clover planted *among* the crops, along with temporary flooding of fields, to effectively *control*, rather than totally *eliminate*, 'weeds'.

Ground covers like clover, alfalfa and vetch act as a 'green manure', conditioning and nourishing the soil. Even planted in soil devastated by forestry, within 10 years they can rejuvenate 10cm of topsoil,

Fukuoka strictly avoids using any persistent or broad-spectrum pesticides.

His logic is that harmful insects and plant diseases, pathogens, are always going to be present in nature. However under natural conditions a symbiotic balance tends to emerge, between pathogen and victim, predator and prey, plant predator and insect predator. It is the balance that ensures 'plagues' are unlikely to occur.

Plagues represent an imbalance, usually produced by our own, well-intentioned though misinformed, interventions, in the forms of ploughing, compacting, and the application of artificial pesticides, herbicides, and fertilisers. Only when the natural balance is disturbed can a plant pest exceed its 'natural' population size. An increase in one insect population tends to attract or facilitate an increase in the population of its predators. And vice versa. So within short periods of time, nature tends to find a 'moving balance' within a relatively narrow range. This is all the gardener needs to ensure bountiful harvests, year after year.

Weaker plants will tend to fall prey to pathogens and predators, leaving only the strongest, healthiest, pathogen and pest resistant examples to reproduce. You will naturally end up with more productive crops. Modern practices achieve the opposite outcome, but 'protecting' the weakest plants, reversing the natural 'survival of the fittest' principle of plant evolution.

The basic idea is to have sturdy, resistant crops growing in a healthy environment and balanced insect and soil micro-organism ecosystem.

That said, Fukuoka is no dogmatic applier of fixed rules. That would be totally anathema to his 'Zen' practices. Occasionally he will use a machine oil emulsion for the control of insect scales on some of his orchard trees.

However he will not 'prune' his orchard trees. For though you will get initial increases in production from pruning, once you start, you cannot stop. You become a slave to the pruning cycle. And if you fail to prune one year, it can severely damage fruit production for all the succeeding years.

Fukuoka provides this stark example of the dangers of soil 'cultivation'. 'When the soil is cultivated, the natural environment is altered beyond recognition. The repercussions of such acts have caused the farmer nightmares for countless generations. For example, when a natural area is brought under the plough very strong weeds such as crabgrass and docks sometimes come to dominate the vegetation. When these weeds take hold, the farmer is faced with a nearly impossible task of weeding each year. Very often, the land is abandoned'.

So for Fukuoka the sensible response to the facts is to abandon all unnatural practices. The next step is to repair the damage done by these unnatural practices, allowing the local ecosystem, and the soil, to regain its natural balance, fertility, and productivity.

Left 'fallow', the organic remains of plants and animals will naturally accumulate and decompose on the surface with the aid of bacteria and fungi. Rain and dew will dissolve water soluble nutrients, carrying the, along with surface microorganisms and organic matter, deep into the soil, to become food and habitat for a complex soil ecosystem of microorganisms, earthworms, and other soil flora and fauna.

Deep tap roots break up the soil, allowing moisture, nutrients, and soil flora and fauna to penetrate deeper into the soil.

These plant roots, in their turn, then draw up moisture and nutrients from deep in the soil. These become ‘stored’ in the plant ‘bodies’, roots and leaves. The leaves and ‘bodies’ eventually die and fall back to the earth, where they provide food for mold, bacteria, fungi, and insects. The layers of composting leaf matter, dead insect bodies, and other bio-degrading, decomposing organic matter, provide habitats for entire worlds of biodiverse creatures.

This layer also restricts sunlight to ‘weeds’, effectively ‘managing’ them, and conserves moisture in the soil.

Maintaining this ground cover, and returning all the plant material that grows on the site back to the soil as compost, eliminates most of the need for any additional, ‘off-site’ fertiliser. However poultry manure will help decompose this compost, and add valuable nutrients. Fukuoka kept ten ducks for each quarter acre of rice, to control weeds, and provide natural manure.

Where he couldn’t use ducks, he added some chicken manure. However too much can lead to the rice plants growing too thickly and becoming prone to ‘blast’.

Fukuoka observed, immediately after discontinuing ‘cultivation’ of his land, that the number of weeds decreased. There was a clear connection between the number of weeds and the amount of disturbance of the soil. Also the types of weeds changed.

Fukuoka’s observations over decades of successful farming revealed that if he planted seeds while the existing crop is still ripening, these seeds would get a head start on the weeds, so that they would never be in a position to compete with the crop for sunlight, moisture, or nutrients.

Fukuoka’s method leaves no ‘gaps’ between crops for weeds to gain a foothold.

Then as soon as the last crop in the cycle is harvested, Fukuoka would cover the fields with straw, to prevent weeds germinating in the first place. And so over the course of years, the local population of weeds can be almost eliminated.

Fukuoka even plants white clover as a ground cover, along with his grain crops to further control weeds. However the weeds that do still occur play their own role, and are not ‘disturbed’. They appear to contribute to the vigor of the crop, increasing the soils fertility, and thus productivity. There is no need to worry about the variety of weeds growing among the otherwise thriving crop.

In fact Fukuoka ensures a permanent ground cover in his fruit orchards, year round. His fruit trees thrive among the weeds and grasses.

His fields of grain. Rice, barley and rye thrive even as the fields are covered, year round, with clover and weeds.

‘ In early October, before the harvest, white clover and the seeds of fast-growing varieties of winter grain are broadcast among the ripening stalks of rice (White clover is sown about one pound per quarter acre; winter grains 6½ to 13 pounds per quarter acre. For inexperienced farmers or fields with hard or poor soil, it is safer to sow more seed in the beginning. As the soil gradually improves from the decomposing straw and green manure, and as the farmer becomes more familiar with the direct seeding non-cultivation method, the amount of seed can be reduced.). The clover and barley or rye sprout and grow an inch or two by the time the rice is ready to be harvested. During the rice harvest, the sprouted seeds are trampled by the feet of the harvesters, but recover in no time at all. When the threshing is completed, the rice straw is spread over the field'

Fukuoka notes the bitter irony of 'traditional western' 'tilling' approaches. Digging up the soil, to reduce weeds, basically encourages weeds to thrive. It is like sowing weeds. The faster germinating, sprouting, and growing weeds will always have the advantage over your crops.

Fukuoka doesn't restrict his research to grain crops and fruit trees. He also investigates problems in forestry.

'Weevil blights, according to the latest research, are not a direct infestation, but follow upon the action of mediating nematodes. The nematodes breed within the trunk, block the transport of water and nutrients, and eventually cause the pine to wither and die. The ultimate cause, of course, is not yet clearly understood. Nematodes feed on a fungus within the tree's trunk. Why did this fungus begin to spread so prolifically within the tree? Did the fungus begin to multiply after the nematode had already appeared? Alternatively, did the nematode appear because the fungus was already present? It boils down to a question of which came first, the fungus or the nematode. Furthermore, there is another microbe about which very little is known, which always accompanies the fungus, and a virus toxic to the fungus. Effect following effect in every direction, the only thing that can be said with certainty is that the pine trees ace withering in unusual numbers. People cannot know what the true cause of the pine blight is, nor can they know the ultimate consequences of their "remedy." If the situation is meddled with unknowingly, that only sows the seeds for the next great catastrophe. No, I cannot rejoice in the knowledge that immediate damage from the weevil has been reduced by chemical spraying. Using agricultural chemicals is the most inept way to deal with problems such as these, and will only lead to greater problems in the future'.

Fukuoka's famous 'seed ball's

Fukuoka's general approach led him to develop several innovative techniques for protecting his exposed seeds from predators, and too much or too little moisture, to ensure they survived to germinate when the time was ripe for them.

He has developed several ways of making seed balls. In the simplest method, Fukuoka would spread the seeds out on a flat pan or basket. He would then dust fine powdered red or brown river clay over them, the kind used in pottery. This is rich in diverse minerals, as compared to white or grey clay. When using red clay, wear a mask, and avoid inhaling the clay dust as it can be harmful to your lungs.

Spraying an occasional mist of water over the seeds as he shook the pan or basket in a circular motion.

The result was that the clay would adhere to the seeds, forming little balls of clay around them, a little over 1cm in diameter.

The resulting seeds ball are each made up of seeds, soil, and clay minerals.

Alternatively, mix 5 parts clay to 1 part mixed seed, and 3 parts natural local compost with living organisms. Slowly add 2 parts water to this mix to achieve a mixture like bread dough. Roll this ‘doughy’ mixture around in the palms of your hand until it is round and smooth. Then leave it to dry, shrink, and harden, for about 24 hours.

You can automate the process to some degree, by placing the mixture in a rotating drum, such as a cement mixer, and spraying water onto the mix until the seed balls form. Harvest the larger seed balls using a wire mesh with gaps as large as you want the balls to be. The smaller balls will fall through and continue growing larger as the drum turns, and they accumulate more of the mixture. You can make enough seed balls to seed an acre of land in one day, using this approach.

Another method he developed was to soak unhulled rice seeds in water for several hours in water, after which they are removed from the water and mixed into moist clay using the hands or feet. This mass of rice and clay is then pushed through a wire-mesh, such as chicken wire, to separate it into small clods. These clods were left for a few days to dry. Once dry, they were rolled in the palms of his hands into pellets. Generally the ideal was for each pellet to contain one grain of rice, one ‘seed’.

However there were special circumstances in which he would mix other grains and vegetable seeds together.

This is the common approach adopted today for ‘regenerating’ barren soils, such as in desert and wasteland ‘recovery’ projects.

The now dry seed balls are now ready to be scattered over their target ground, about 3 per square meter. Simply toss them out onto the ground while walking at your usual pace.

No other preparation is required, as you have provided the seed with everything it will need to germinate and gain a foothold. The seeds will remain protected from predatory insects, birds, mice, ants, moles, crickets, slugs and so on, and also sheltered from the weather, for many months, until sufficient rain comes, around 7 to 12 cms, to dissolve the seed ball, and facilitate germination of the seeds in it.

While most farmers believe it is necessary to plough the field in preparation for sowing, or to at least place holes in the ground for the seeds, before covering them, in fact germination occurs best in the open air. This is how seeds are sown in nature. This is what seeds are adapted to. Exposure to oxygen.

As an additional precaution, add peppermint and chili powder (around 10% by total seed ball mass) to the seed balls to discourage any predators who find seed balls dampened and softened by light rains not sufficient enough to dissolve the balls and facilitate germination.

Don’t fret about the seeds that get eaten. From many of these seeds will pass through the predators undigested, and coated in natural fertiliser, and thus achieve your intended purpose for them.

You don’t need to use the seed balls immediately. In fact they can be stored several months in a cool, well ventilated, dry place, until you are ready to use them.

The more diverse your mix of seeds, and the more local the soil you use, the greater the chances are that at least some of the seeds will germinate and grow.

If you run a heavy wheel with and embossed surface over the area you want to rejuvenate, moisture and organic matter will accumulate in the small depressions the embossing makes, along with seed balls blown along the ground by the wind. The seeds will thus have even better chances of survival to become healthy plants.

Fukuoka originally used his seed ball method for disseminating rice seeds. As he takes a 'no-till' approach, he broadcasts seeds rather than 'planting' them.

Fukuoka would first spread a mulch of straw (after he had threshed the grains from his previous crop), over his fields to prevent weeds, and retain moisture. Over this he would spread a thin layer of poultry manure to encourage the straw to break down into compost.

Fukuoka used much less water than his contemporaries. He would take threshed straw and scatter it, in its natural, unshredded state, over his fields. He would flood his fields and leave that water to stand for seven to ten days, drowning or weakening any weeds present, so that they never offered much competition as his seeds germinated, and sprouted up through the straw.

For most of the time rainwater would be the only source of irrigation. Then closer to harvest time he would flood his fields, and allow them to drain, on a weekly basis. He'd harvest in autumn.

The entire process would take up very little of his time, and require very little actual 'work' on his part. The sowing of seeds could be done by one person, while the harvesting could be managed by a few people.

The simplicity of this method took him 30 years to develop. Ultimately he could manage a quarter acre of rice, and winter grain, all by himself, using traditional Japanese tools, and locally available materials, most of which were an earlier product of his own land.

Once the initial transition to this new method, with its weeding, composting, and pruning, was completed, the basic tasks that remained to the farmer were limited to making seed balls, broadcasting them, and then laying straw.

How Fukuoka spreads straw

The way Fukuoka spreads the straw is key to fertility, seed germination, weed prevention and management, preventing seed losses to sparrows, and water management.

After sowing his seed balls, he will spread straw over them. This protects them from rotting even after heavy rains. Straw will even solve the problem of crabgrass, the most difficult problem in the direct seeding non-cultivation method.

Fukuoka has spent 30 years practicing Zen in the context of his gardening methods. What 'reality' revealed to him, or, if you like, what the straw, the land, the birds, the rain, the rice, the winter grain, and everything else that made up that 'reality' 'communicated' to him, is that it is better to scatter the straw uncut. To mimic the way in which the straw would naturally have fallen at the end of its life cycle. Every which way. If you lay it like most people have been conditioned to lay compost, it will prevent seeds from germinating, by offering an impenetrable barrier not only to weeds, but the rice and grain sprouts and seedlings.

As it turns out, the rice straw from the recently harvested rice crop works best as a mulch for the winter grain planted after the rice has been harvested. In turn the winter grain straw works best for the rice crop planted after the grain has been harvested.

This is because the diseases that affect rice don't affect the winter grain, and vice versa. And the fresh 'harvest' of winter grain straw will offer much more protection than the decomposed rice straw of the previous rice harvest would.

On the other hand, Fukuoka found that if fresh straw from winter grains, such as wheat, rye, and barley, were used as mulch for other winter grains, damage from diseases spread from the hay to the new crop was not uncommon.

Fukuoka is a model Humean Skeptic Zen practitioner. He does not claim to understand why these methods work. He acts heuristically. They work. He uses them. He allows 'reality' to speak to him, rather than trying to force some theory onto reality. He adopts the 'hit and miss', 'try and see' approach of evolution.

Fukuoka is not just a Zen practitioner by chance. He understands the practice of Zen in a way he articulates as 'It is pointless trying to understand *any*thing with the limited human intellect'.

Zen is about letting reality communicate with you. Often directly to your insight, or what is often called the 'non-conscious' mind. Your 'sub-conscious' or 'Un-conscious, if you like.

As Fukuoka said, years before Nike stole the Zen Buddhist saying as an add campaign, 'Just Do It'. Try it. If it works. Continue. If it doesn't. Try something else. Never make any assumptions that you 'understand' what you are doing. You don't. Your human mind can't. You can model processes and patterns you observe in nature, and apply them to the ends you seek, as means. But, as Hume reminds us, there are no 'cause-effect' relationships to be found in reality. Only interactions and outcomes.

So if you have a desired outcome, interact with reality. Let reality impress itself upon you. Stop trying to force your own ideas of reality onto it. Your ideas are silly little human speculations and models. It is an act of violence to try to define reality. To limit it to anything. An act of violence upon reality, and upon your own self.

Empty your mind. Remove all preconceptions. All pre-definitions. Stop the internal noise. Turn off the internal voices. Be here, now. Totally immersed in the present. Totally undistracted of thoughts, fears, worries, hopes, desires, related to the past and future. Be here, now.

Then calmly anticipate insights. Without forcing anything. Be calmly alert. Positively expectant.

And never fix your outcomes too firmly. Part of letting reality communicate impress itself upon your mind, to communicate TROONATNOOR with you, is to leave the outcomes open. Don't try to force some outcome.

The plan is nothing, the planning is everything.

The process is the outcome.

Like the journey is itself the point, not the destination.

All journey's end with death and new-birth.

All processes continue without end.

There are no objects, only *pro*cesses of energy-matter-consciousness.

There are no 'things' in themselves, only *relationships* between processes.

The meaning of anything is its relationship to the totality of everything else. The context or 'framing' of any element determines its meaning. So trying to isolate any 'thing', 'object', or 'element' from the whole, as any quantum physicist will tell you, leaves you talking about no-thing.

In linguistics and Neuro-Linguistic-Programming this is called 'nominalization'. Taking a process, and thinking and talking about it as if it is an object.

Another term for this non Zen error in thinking and communication is 'reification'. Turning a process into a thing.

I sociology you would talk about 'institutionalising' a set of interactions so that they become 'ossified'. This 'ossification is an artefact of our non-Zen approach to TROONATNOOR.

But all that exists are processes and relationships.

We use metaphors to interact with these processes and relationships. To identify and express apparent patterned relationships that impress themselves upon our consciousness.

Our mistake is to mistake these metaphors for concrete objects and things, and then to act as if they really are fixed, concrete objects.

To act as if individual elements of the whole have some existence independent of that whole.

To analyze components, as if this will offer meaningful insights into the wholes they, in interaction, produce.

TROONATNOOR is a propergent of the interaction of the interactions of processes and relationships that emerge from the primerty, the primordial energy-consciousness, interacting with itself. In the same way that all mathematical equations, no matter how apparently complex and stable, resolve to multiple instances of 1+1, and the reverse. Refer to TROONATNOOR volume I for details.

There is no 'time and space'. Even Einstein admitted this.

The only place you can ever be is here. Now.

If you are any other place, in your mind, then you won't be receptive to what is happen-*ing*.

Fukuoka found that scattering straw conserves and improves the soil structure, enriching the soil, better than any artificial chemical treatments could.

But all of this is only possible when you understand that you are NEVER to plough, till, or turn the soil.

This is called 'cultivation' in our western 'farming' tradition. However this is a misnomer. For ploughing and tilling do not 'cultivate' anything except weeds, poor soil, dead soil, devoid of nutrients, bereft of life, of micro-organisms, of beneficial soil fauna and flora.

Fukuoka, at the time of writing 'The One Straw Revolution', had not ploughed a single of his fields for over 20 years. And his fields were the most productive in Japan.

Using his methods the soil quality actually improves each growing season.

This is the true alchemy. The true positive sum game. The true generative process.

Fukuoka estimates that …'the surface layer, rich in humus, has become enriched to a depth of more than four inches during these years. This is largely the result of returning to the soil everything grown in the field but the grain itself. '

The only 'compost' he uses is the straw, prepared as previously described, covered with a thin layer of poultry manure, or duck droppings. The straw and manure decompose completely within 6 months.

That is all the 'work' involved in his method.

Doesn't that sound a lot like the 'Eden' we have heard so much about.

Compare that to the 'living by the sweat of his brow', 'ploughing the earth' 'farming' lifestyle we 'inherited' after we lost the Garden of Eden.

Fukuoka on compost

Fukuoka's contemporary Japanese farmers followed the 'official prescriptions' regarding composting. They would chop up straw, add water and lime, and carry it out to the fields, to be laid in a very specific, formalized matter. Most of the straw their crops produced was left to rot in piles around their properties, rather than being used on the crops.

'For hundreds of years farmers have taken great care in preparing the seedbeds for growing strong, healthy rice seedlings. The small beds were tidied up as if they were the family altars. The earth was cultivated, sand and the ashes of burned rice hulls were spread all around, and a prayer was offered that the seedlings would thrive. It is not unreasonable, then, that the other villagers around here thought I was out of my mind to broadcast seed while the winter grain was still standing in the field, with weeds and bits of decomposing straw scattered everywhere'.

How Fukuoka outwitted the sparrows

One big problem 'direct seeding' has to cope with is birds such as sparrows. They will follow you around eat up all the seeds as you sow them.

The sparrows might at first be deterred by scarecrows, nets, and strings of rattling cans, but within a year or two they would learn how to defeat these obstacles, and lose their fear of the noise and 'straw men'.

Fukuoka experimented in his typical Zen way, and soon found that the best solution was to sow the seed while the preceding crop was still in the field. In this way the seeds would be hidden among the grasses and clover. Then once the current crop was harvested, Fukuoka would spread a mulch of rice, rye, or barley straw.

Fukuoka expresses the fundamental principle of generative / creative thinking, and a culture of innovation, when he writes 'I have made many mistakes while experimenting over the years and have experienced failures of all kinds. I probably know more about what can go wrong growing agricultural crops than anyone else in Japan'.

It is the adoption of a 'hit and miss', 'try and see' process, one in which the practitioners are bound to 'fail' thousands of more times than they are going to 'succeed', that has made Western Civilisation so innovative. The fear of 'losing face' we associate with Eastern culture, in this way, represents a real obstacle to Asian development and future innovation. If 'The West' has anything to teach 'The East', it is the secret that Fukuoka, the Zen practitioner, has already 'mastered'.

Growing Rice in a (relatively) dry Field

Small scale rice and grain farming is not economically viable on a commercial basis. But for your own use, as part of your wider food security project, it is an option.

Rice is the most popular grain in the world for humans. And even though at first your local birds may leave it alone, due to their unfamiliarity with it, sooner or later then tend to 'catch on', and learn that rice is food for them too.

Migratory and local birds can quickly gobble up your entire crop. And the measures necessary to deter and prevent them getting at your crops are so expensive they make it cheaper for you to simply buy the rice at the supermarket, rather than bother growing it.

And grains in general are considered the 'crack' of farm animals. They love it as much as we do. So simply keeping large and small animals from eating your crops is a huge, expensive challenge.

That said, you should consider sowing rice and other grains among your other crops, and seeing how they do. You may end up with a nice harvest of delicious nutritious, grains. However your best bet, in terms of protein, nutrition, calories, and ease of growing, are going to end up being typical kitchen garden vegetables, and soya beans.

Fukuoka aimed for compact rice plants. This baffled his neighbors and visitors, who tended to aim for tall plants with big leaves. But this means the rice plants are devoting a lot of energy to their leaves and stalks, rather than to their seeds, the rice. He constantly produced greater yields with less water, zero chemicals, and much less work, than his contemporaries, by letting his rice and other grains grow much more naturally. He found the same principled applied to wheat, rye, buckwheat, oats, millet, and other grains he experimented with.

Fukuoka even successfully challenged the notion that rice must be grown in flooded fields. This practice is centuries old. Few people imagine it is even possible to grow rice without keeping the plants under a few inches of water throughout the entire growing season. However Fukuoka experimented and found that rice plants actually grow best in soil carrying only 60 to 80% of its water holding capacity.

But Fukuoka, in true Zen style, ignored the 'conventional wisdom' and experimented with alternatives. He found that 'When the field is not flooded, plants develop stronger roots and are extremely resistant to attacks by disease and insects. The main reason for growing rice in a flooded field is to control the weeds by creating an environment in which only a limited variety of weeds can survive. Those that do survive, however, must be pulled by hand or uprooted with a hand-weeding tool. By the traditional method, this time-consuming and backbreaking job must be repeated several times in each growing season'.

Fukuoka has a unique way of growing rice which has provided him with record yields, while continually increasing his soil's fertility. He expects yields continue to increase and the soil to become richer every year. All by following his principles of non-till, zero insecticide or weed killer.

He has noted that insects and pathogens appeared only *after* he cleared his fields of thickets and resprouted trees. In other words the more 'cultivated' his land appeared, the less productive it became, and the more pests appeared. The 'wilder' he allowed it to remain, the fewer pests and diseases his crops were prone to.

He found that if he left a fruit tree to grow naturally from the very beginning, without any pruning, it would bear fruit every year and never require pruning. Once you started pruning, you committed yourself to a lifetime of pruning. If you failed to prune one year, you risked producing a barren fruit tree.

'If a tree is planted carefully and allowed to follow the natural form from the beginning, there is no need for pruning or sprays of any kind'

'In order to improve the orchard soil, I tried planting several varieties of trees. Among them was the Morishima acacia. This tree grows year round, putting out new buds in all seasons. The aphids, which feed on these buds, began to multiply in great numbers. Ladybirds fed on the aphids and soon they too began to increase. After the ladybirds had devoured all of the aphids, they climbed down to the citrus trees and started to feed on other insects such as mites, arrowhead scales, and cottony-cushion scales. Growing fruit without pruning, fertilizing, or using chemical sprays is possible only within a natural environment'.

Fukuoka's orchard, ultimately came to be made up of pines and cedar trees, pear trees, persimmons, loquats, Japanese cherries, and many other native varieties growing among the citrus trees.

He discovered he could get many 'benefits' by planting Morishima acacia among his orchard trees. He found that 'The wood is hard, the flowers attract bees, and the leaves are good for fodder. It helps to prevent insect damage in the orchard, acts as a windbreak, and the rhizobium bacteria living within the roots fertilize the soil. This tree was introduced to Japan from Australia some years ago and grows faster than any tree I have ever seen. It sends out a deep root in just a few months and in six or seven years it stands as tall as a telephone pole. In addition, this tree is a nitrogen fixer, so if 6 to 10 trees are planted to the quarter acre, soil improvement can be carried out in the deep soil strata and there is no need to break your back hauling logs down the mountain'.

He also sowed a mixture of white clover and alfalfa on the barren ground. It was several years before they could take hold, but finally they came up and covered the orchard hillsides.

Another successful trial involved planting Japanese, radish (daikon). The roots of this hearty vegetable penetrate deeply into the soil, adding organic matter and opening channels for air and water circulation. It reseeds itself easily and after one sowing, you can almost forget about it.

He noted that after the soil became richer, the weeds started to make a comeback. After seven or eight years, the clover almost disappeared among the weeds, so he tossed out a little more clover seed in late summer after cutting back the weeds (During the summer Mr. Fukuoka cuts the weeds, briers, and tree sprouts growing beneath the orchard trees with a scythe.). As a result of this thick weed/clover cover, over the past twenty-five years, the surface layer of the orchard soil, which had been hard red clay, has become loose, dark colored, and rich with earthworms and organic matter. With the green manure fertilizing the topsoil and the roots of the Morishima acacia improving the soil deep down, Fukuoka found he could do quite well without fertilizer, or any form of tilling or cultivation between the orchard trees. With tall trees for windbreaks, citrus in the middle, and a green manure cover below, he found a way to take it easy and let the orchard manage itself.

Fukuoka on Legumes

Legumes are best sown in spring. Cowpeas and kidney beans are easy to grow and give high yields. In growing peas, red azuki beans, soybeans, pinto beans, and kidney beans, early germination is essential. They will have difficulty germinating without enough rain, and you must keep an eye out for birds and insects. Tomatoes and eggplants are not strong enough to compete with the weeds when they are young, and so should be grown in a starter bed and later transplanted. Instead of staking them up, let the tomatoes run along the ground. Roots will grow down from the nodes along the main stem and new shoots will come up and bear fruit. As for the cucumbers, the creeping-on-the-ground variety is best. You have to take care of the young plants, occasionally cutting the weeds, but after that, the plants will grow strong. Lay out bamboo, or the branches of a tree and the cucumbers will twine all over them. The branches keep the fruit just above the ground so that it does not rot. This method of growing cucumbers also works for melons and squash. Potatoes and taros are very strong plants. Once planted they will come up in the same place every year and never be overgrown by weeds. Just leave a few in the ground when you harvest. If the soil is hard, grow Japanese radish first. As their roots grow, they cultivate and soften the earth and after a few seasons, potatoes can be grown in their place. I have found white clover useful in holding back weeds. It grows thickly and can smother out even strong weeds such as mugwort and crabgrass. If the clover is sown mixed with the vegetable seeds, it will act as a living mulch, enriching the soil, and keeping the ground moist and well aerated. As with vegetables, it is important to choose the right time to sow the clover seed. Late summer or fall sowing is best; the roots develop during the cold months, giving the clover a jump on the annual spring grasses. The clover will also do well if sown early in spring. Either broadcasting or planting in rows about twelve inches apart is fine. Once the clover takes hold, you do not need to sow it again for five or six years.

The main aim of this semi-wild vegetable growing is to grow crops as naturally as possible on land that would otherwise be left unused. If you try to use improved techniques or to get bigger yields, the attempt will end in failure. In most cases, the failure will be caused by insects or diseases. If various kinds of herbs and vegetables are mixed together and grown among the natural vegetation, damage by insects and diseases will be minimal and there will be no need to use sprays or to pick bugs off by hand. You can grow vegetables any place there is a varied and vigorous growth of weeds. It is important to become familiar with the yearly cycle and growing pattern of the weeds and grasses. By looking at the variety and the size of the weeds in a certain area, you can tell what kind of soil is there and whether or not a deficiency exists. In my orchard, I grow burdock, cabbage, tomatoes, carrots, mustard, beans, turnips and many other kinds of herbs and vegetables in this semi-wild way.

Farmers and specialists are confused as to which path to follow -to continue paddy transplanting, or to move over to direct seeding, and if the latter, to choose cultivation or non-cultivation. I have been saying for the past twenty years that direct seeding non-cultivation will eventually prove to be the best way.

The three great rice diseases -stem rot, rice blast disease, and bacterial leaf blight. But if farmers would stop using weak, "improved" seed varieties, stop adding too much nitrogen to the soil, and reduce the amount of irrigation water so that strong roots could develop, these diseases would all but disappear and chemical sprays would become unnecessary. At first, the red clay soil in my fields was weak and unsuited for growing rice. Brown spot disease frequently occurred. But as the field gradually grew in fertility, the incidence of brown spot disease decreased. Lately there have been no outbreaks at all. With insect damage, the situation is the same. The most important thing is not to kill the natural predators. Keeping the field continuously under water or irrigating with stagnant or polluted water will also lead to insect problems. The most troublesome insect pests, summer and fall leafhoppers, can be kept under control by keeping water out of the field. Green rice leafhoppers, living in the weeds over the winter, may become a virus host. If this happens the result is often a loss of ten to twenty percent from rice blast disease. If chemicals are not sprayed, however, there will be many spiders present in the field and one can generally leave the work to them. Spiders are sensitive to even the slightest human tampering and care must always be taken on this account. Most people think that if chemical fertilizer and insecticides were abandoned agricultural yields would fall to a fraction of the present level. Experts on insect damage estimate that losses in the first year after giving up insecticides would be about five percent. Loss of another five percent in abandoning chemical fertilizer would probably not be far mistaken. That is, if the use of water in the rice field were curtailed, and the chemical fertilizer and pesticide spraying encouraged by the Agricultural Co-op were abandoned, the average losses in the first year would probably reach about ten percent. The recuperative power of nature is great beyond imagining and after this initial loss, I believe harvests would increase and eventually surpass their original level.

By attacking the weaker plants the stem borers produced a kind of thinning effect. The withering of some stems left more room for the rest of the plants. Sunlight was then able to penetrate to the lower leaves. These remaining rice plants grew more strongly as a result, sent up more grain-bearing stalks, and produced more grains to the head than they could have without the thinning. When the density of stalks is too great and insects do not thin out the excess, the plants look healthy enough, but in many cases, the harvest is actually lower. In the use of straw and clover and the temporary flooding of the fields, I have found a simple way to control weeds without either the hot, hard labor of weeding or the use of chemicals.

Even though it is the same quarter acre, the farmer must grow his crops differently each year in accordance with variations in weather, insect populations, the condition of the soil, and many other natural factors. Nature is everywhere in perpetual motion; conditions are never exactly the same in any two years. Modern research divides nature into tiny pieces and conducts tests that conform neither with natural law nor to practical experiences. The results are arranged for the convenience of research, not according to the needs of the farmer. To think that these conclusions can be put to use with invariable success in the farmer's field is a big mistake.

The geography and topography of the land, the condition of the soil, its structure, texture, and drainage, exposure to sunlight, insect relationships, the variety of seed used, the method of cultivation-truly an infinite variety of factors-must all be considered. A scientific testing method that takes all relevant factors into account is an impossibility.

The "Good Rice Movement" and the "Green Revolution.” Because these methods depend on weak, "improved" seed varieties; it becomes necessary for the farmer to apply chemicals and insecticides eight or ten times during the growing season. In a short time, the soil is burned clean of microorganisms and organic matter. The life of the soil is destroyed and crops come to be dependent on nutrients added from the outside in the form of chemical fertilizer.

By spreading straw, growing clover, and returning to the soil all organic residues, the earth comes to possess all the nutrients needed to grow rice and winter grain in the same field year after year. By natural farming, fields that have already been damaged by cultivation or the use of agricultural chemicals can be effectively rehabilitated.

If crops were to be grown without agricultural chemicals, fertilizer, or machinery, the giant chemical companies would become unnecessary and the government's Agricultural Co-op Agency would collapse. To put the matter right out front, I said that the Co-ops and the modern agricultural policy-makers depend on large capital investment in fertilizer and agricultural machinery for their base of power. To do away with machinery and chemicals would bring about a complete change in the economic and social structures. Therefore, I could see no way that Mr. lchiraku, the Co-ops or the government officials could speak out in favor of measures to clean up pollution. When I spoke out in this way, the chairman said, "Mr. Fukuoka, you are upsetting the conference with your remarks," shutting my mouth for me.

A problem cannot be solved by people who are concerned with only one or another of its parts.

The most commonly used chemical fertilizers, ammonium sulphate, urea, super phosphate and the like, are used in large amounts, only fractions of which are absorbed by the plants in the field. The rest leaches into streams and rivers, eventually flowing into the Inland Sea. These nitrogen compounds become food for algae and plankton that multiply in great numbers, causing the red tide to appear. Of course, industrial discharge of mercury and other contaminating wastes also contribute to the pollution, but for the most part water pollution in Japan comes from agricultural chemicals.

My modest solutions, such as spreading straw and growing clover, create no pollution. They are effective because they eliminate the source of the problem. Until the modern faith in big technological solutions can be overturned, pollution will only get worse.

I let two hens and one rooster loose to run wild on the mountainside and after one year there were twenty-four. When it seemed that few eggs were being laid, the local birds were busy raising chickens. They scratch around and feed freely on seeds and insects in the area and lay delicious, natural eggs.

Most supermarket vegetables are a watery chemical concoction of nitrogen, phosphorous, and potash, with a little help from the seed. And that is just how they taste. And commercial chicken eggs (you can call them eggs if you like) are nothing more than a mixture of synthetic feed, chemicals, and hormones. This is not a product of nature but a man-made synthetic in the shape of an egg. The farmer who produces vegetables and eggs of this kind, I call a manufacturer.

Japanese agriculture has lost sight of its direction and has become unstable. It has strayed away from the basic principles of agriculture and has become a business.

When I first began direct-seeding rice and winter grain, I was planning to harvest with a hand sickle and so I thought it would be more convenient to set the seeds out in regular rows. After many attempts, dabbling about as an amateur, I produced a handmade seeding tool. Thinking that this tool might be of practical use, to other farmers, I brought it to the man at the testing center. He told me that since we were in an age of large-sized machinery he could not be bothered with my "contraption." Next, I went to a manufacturer of agricultural equipment. I was told here that such a simple machine, no matter how much you tried to make of it, could not be sold for more than $3.50 each. "If we made a gadget like that, the farmers might start thinking they didn't need the tractors we sell for thousands of dollars.” He said that nowadays the idea is to invent rice planting machines quickly, sell them head over heels for as long as possible, then introduce something newer. Instead of small tractors, they wanted to change over to larger-sized models, and my device was, to them, a step backward. To meet the demands of the times, resources are poured into furthering useless research, and to this day, my patent remains on the shelf.

When vegetables are grown in a prepared field using chemical fertilizer, nitrogen, phosphorus, and potash are supplied. But when vegetables are grown with natural ground cover in soil, naturally rich in organic matter, they get a more balanced diet of nutrients. A great variety of weeds and grasses means that a variety of essential nutrients and micronutrients are available to the vegetables. Plants that grow in such balanced soil have a more subtle flavor. Edible herbs and wild vegetables, plants growing on the mountain and in the meadow, are very high in nutritional value and are also useful as medicine. Food and medicine are not two different things: they are the front and back of one body. Chemically grown vegetables may be eaten for food, but they cannot be used as medicine

If 22 bushels (1,300 pounds) of rice and 22 bushels of winter grain are harvested from a quarter acre field such as one of these, then the field will support five to ten people each investing an average of less than one hour of labor per day. But if the field were turned over to pasturage, or if the grain were fed to cattle, only one person could be supported per quarter acre.

There is just a quarter-acre of arable land for each person in Japan. If each single person were given one quarter-acre, that is 1 1/4 acres to a family of five, that would be more than enough land to support the family for the whole year. If natural farming were practiced, a farmer would also have plenty of time for leisure and social activities within the village community. I think this is the most direct path toward making this country a happy, pleasant land.

I do not particularly like the word "work." Human beings are the only animals who have to work, and I think this is the most ridiculous thing in the world. Other animals make their livings by living, but people work like crazy, thinking that they have to in order to stay alive. The bigger the job, the greater the challenge, and the more wonderful they think it is. It would be good to give up that way of thinking and live an easy, comfortable life with plenty of free time. I think that the way animals live in the tropics, stepping outside in the morning and evening to see if there is something to eat, and taking a long nap in the afternoon, must be a wonderful life.

Fukuoka likes to refer to what he calls ‘Nature’s food mandala’. A mandala is a circular diagram in eastern art and religion, symbolizing the totality and wholeness of its subject. From such a mandala, it can be seen that the sources of food provided on the face of the earth are nearly limitless. If people will acquire food through the Zen practice of, ‘no-mind’.

Compared with plants that ripen naturally, vegetables and fruits grown out-of-season under necessarily unnatural conditions contain few vitamins and minerals. It is not surprising that summer vegetables grown in the autumn or winter have none of the flavor and fragrance of those grown beneath the sun by organic and natural methods.

Grow a soft, fat rice plant in a flooded field and you get a plant easily attacked by insects and disease. If "improved" seed varieties are used one must rely on the help of chemical insecticides and fertilizer. On the other hand, if you grow a small, sturdy plant in a healthy environment, these chemicals are unnecessary. Cultivate a flooded rice field with a plough or tractor and the soil becomes deficient the soil. Structure is broken down, earthworms and other small animals are destroyed, and the earth becomes hard and lifeless. Once this happens, the field must be turned every year. But if a method is adopted in which the earth cultivates itself naturally, there is no need for a plough or cultivating machine. After the living soil is burned clean of organic matter and microorganisms, the use of fast-acting fertilizers becomes necessary. If chemical fertilizer is used the rice grows fast and tall, but so do the weeds. Herbicides are then applied and thought to be beneficial. But if clever is sown with the grain, and all the straw and organic residues are returned to the surface of the field as mulch, crops can be grown without herbicides, chemical fertilizer or prepared compost. In farming, there is little that cannot be eliminated. Prepared fertilizer, herbicide, insecticide, machinery-all are unnecessary. But if a condition is created in which they become necessary, then the power of science is required. I have demonstrated in my fields that natural farming produces harvests comparable to those of modern scientific agriculture. If the results of a non-active agriculture are comparable to those of science, at a fraction of the investment in labor and resources, then where is the benefit of scientific technology?

It has been nearly forty years since I realized how important straw could be in growing rice and barley. At that time, passing an old rice field in Kochi Prefecture which had been left unused and uncultivated for many years, I saw healthy young rice sprouting up through a tangle of weeds and straw which had accumulated on the field's surface. After working on the implications of that for many years, I came out advocating a completely new method of rice and barley growing. Believing that this was a natural and revolutionary way of farming, I wrote about it in books and magazines, and spoke of it on television and radio dozens of times. It seems a very simple thing, but farmers are so set in their thinking about how straw should be used, that it is unlikely that they will accept change easily. Spreading fresh straw on a field can be risky because rice blast and stem rot are diseases always present in rice straw. In the past, these diseases have caused great damage, and this is one of the main reasons that farmers have always turned the straw into compost before putting it back onto the field. Long ago, careful disposal of rice straw was commonly practiced as a countermeasure against blast disease, and there were times in Hokkaido when the wholesale burning of straw was required by law.

Stem borers also enter the straw to pass the winter. To prevent an infestation of these insects, farmers used to compost the straw carefully all winter long to be sure that it would be completely decomposed by the following spring. That is why Japanese farmers have always kept their fields so neat and tidy. The practical knowledge of everyday life was that if farmers left straw lying around, they would be punished by heaven for their negligence. After years of experimentation, even technical experts have now confirmed my theory that spreading fresh straw on the field six months before seeding is completely safe. This overturned all previous ideas on the subject. But it is going to be a long while before the farmers become receptive to using straw in this manner.

Prepared compost is unnecessary, that all you have to do is scatter fresh unshredded straw across the field. In travelling up to Tokyo, looking out the window of the Tokaido train, I have seen the transformation of the Japanese countryside. Looking at the winter fields, the appearance of which has completely changed in ten years, I feel an anger I cannot express. The former landscape of neat fields of green barley, Chinese milk vetch, and blooming rape plants is nowhere to be seen. Instead, half-burned straw is piled roughly in heaps and left soaking in the rain. That this straw is being neglected is proof of the disorder of modem farming. The barrenness of these fields reveals the barrenness of the farmer's spirit. It challenges the responsibility of government leaders, and clearly points out the absence of a wise agricultural policy.

Toby Hemenway’s ‘Meadowed Garden’ concept

Hemenway has taken a similar approach to Fukuoka, in observing, then imitating, naturally abundant, generative, systems. Systems which *build* soil fertility, rather than destroying it. Systems that require no external inputs. Systems with their own built-in mechanisms for managing pests without pesticides and herbicides, and maintaining and increasing soil fertility without fertilisers.

Systems that are so productive that you can live off the surplus, while the 'capital' continues to grow. Ensuring abundance without much toil. Allow for a great deal of leisure time. For current generations, and the future generations that will inherit this capital.

Like Fukuoka, he avoids most of the 'work' associated with 'traditional' farming practices, such as ploughing, weeding, and irrigation, along the mechanical and chemical 'interventions' associated with 'modern' agro-business practices.

Instead he relies on polycultural diversity, mulch, and compost, to ensure moisture retention, soil fertility, and weed, pest and disease control and prevention.

As winter ends, Hemenway will compost or mulch his future garden beds. He waits until after the last frost of winter before broadcasting seeds of radish, dill, parsnip, calendula, and various lettuce varieties. Then he places half a centime of compost over these seeds.

He is then free to pursue other activities while the seeds germinate, sprout, and grow. The radishes will be ready for harvesting first. He will plant cabbage seedlings in the holes left when they are pulled up. Next lettuces will be ready to cut off at ground level. This means it is time to plant been and buckwheat. Dill and Calendula are then harvested for their edible tubers, as the cabbages mature, and the parsnips become ready to pull up. Garlic cloves and fava beans will be planted in the holes they leave behind, to be harvested the following year.

Thus, rather than raping and pillaging the soil, and employing machines and chemical weapons typical of war, Hemenway works alongside nature, engaging it as an ally, rather than an enemy to be coerced, subdued, and ultimately, as has proven the case, destroyed.

Black Soldier Flies will dispose of much of your human waste

Black Soldier Fly (Hermetia illucens), found between 45 degrees latitude North down to 40 degrees latitude South e.g Australia, N.Z, Argentina to central U.S.A, the female laying 99.6% of eggs between 27.5 and 37.5 degrees Celsius, a large wasp-like fly, lay eggs in any type of manure, including human waste, and other bio solids such as vegetable matter.. In 3-5 days the larvae can reduce the mass of manure or vegetable matter by 50%, while increasing its nitrogen. In the process they can potentially eliminate virtually all 'house flies' in the area as house flies will not lay eggs were BSF larvae were moderately abundant

BSF themselves are not considered a pest in any context. Unlike house flies they rarely enter homes.

In this context, Black Soldier Flies may represent a way to reduce human waste management problems.

Cord-wood (log) homes

Traditional ‘log cabins’ are formed by stacking roughly cut logs, sometimes called ‘cord-wood’.

Because the logs are not finished or ‘dressed’, fiber rope, or masonry formed of lime and sawdust, is laid on top of each layer, and thus between each log, to fill the gaps between each log.

The devil is in the details when it comes to ‘community’ and ‘society’

All human, and often other animal, communities are plagued by envy and jealousy, which are often expressed in malicious thoughts and deeds.

Envy is where you want something someone else has. You convince yourself that they are not entitled to it, but you are. At its best, envy will motivate others to strive towards high achievement. At its worst, it will lead to ‘class warfare’, ‘fall poppy syndrome’, and the typical Marxist ‘punishment and destruction of those we perceive as superior to ourselves, or simply more fortunate than ourselves. To the Marxist, the presence of someone of greater talent, ambition, or ethical tone, is felt as a threat. To the healthy mind, it is perceived as an opportunity to learn from them.

Jealousy is where you enjoy some benefit, and want to keep that enjoyment your sole property. You don’t want others to have what you have. You try to sabotage other people’s attempts to attain what you have. This is even more destructive and irrational than envy. Because it is about limiting the ‘good’ in the world.

Any attempt at a ‘utopia’ will have to deal with envy and jealousy as basic elements of human nature. Not deny they exist. But shed the light of reason upon them. To find ways to manage them. To limit their damage.

Expecting the intercession of gods, angels, or fairies, will prove disastrous.

We need to accept that we are no more significant to nature than a worm.

We must learn to live off the marginal surpluses we can generate from ‘tweaking’ natural systems, rather than attempting to impose our will, and declaring war on nature when it rebels.

We have run out of ‘green fields’ to invade and exploit. We have exhausted most of the fertility produced by thousands of years of forests.

We have reached ‘peak soil’. This is the state in which fertile soil is being lost to erosion, and degradation, faster than it can be replaced. Either by regenerated land, or ‘green fields’.

In the U.S alone, 30% of the once arable land has been lost to erosion. At the same time around 40% of agricultural crops end up in land-fill. Costing the average U.S household up to 2000 dollars a year in transport and other costs.

60% of this waste ends up in landfills that add up to 20% to the total methane (greenhouse) gas emissions of the U.S.A. The remaining 40% is incinerated, to become ash in landfill.

We used petrochemical products to make up the deficit in soil fertility we created, through our ‘modern’ and ‘traditional’ agricultural practices. Soon we will reach ‘peak oil’. And then it will be time pay the debts we have been accumulating, in terms of soil degradation, erosion, and destruction. We have been living on ‘borrowed time’. Time borrowed via the cheap ‘credit’ represented by cheap oil and gas. Once the price of fossil fuels, due to their increasing relative scarcity, and the costs of exploration and exploitation of increasingly inaccessible reserves, catches up to us, it will be the equivalent of the financial meltdown that is also on its way. We won’t be able to pay. We will have to declare bankruptcy. And in the context of ‘food’, there is no ‘bail out’. There is no ‘too big to fail’ when it comes to the extinction of species. 99% of all species before us, no matter how ‘big’ they were in terms of population size, or individual size, went extinct.

From here on in, after having exploited all the easy to exploit, easy to 'rape and pillage' resources we inherited, via overfishing, over farming, erosion, desertification, pollution, deforestation, and fossil fuel consumption, all the while having constantly increased our human populations, it will be time to ‘take a look in the mirror’. Or perish. This guide is that ‘look in the mirror’.

Instead of expecting to 'go out and take' timber from pristine forests, find fresh fertile fields to plant in, and 'import' the products from around the world to meet our needs, we need to design an ecosystem that can meet all these needs locally.

Reality will soon force us into sober self-control and self-discipline, or force us into fighting wars with our neighbors over increasingly scarce resources. It will force most of us into abject poverty, if we continue along the current path.

Unless we adopt a lifestyle, and means of producing food, heating, housing, clothing, and entertainments, that is consistent with the cycles and processes of nature that created the Garden of Eden we inherited, and sadly destroyed.

We need built-in redundancy in these systems, so that any time one or more of these systems fail, we have alternatives to ‘bridge the gap’, at least until we can get these systems ‘back on-line’ again.

Most of the conspicuous consumption we have been ‘sold’ adds little real satisfaction to our lives. We end up taking extremely wasteful products and services for granted in any case, and they cease providing the initial ‘kick’ we got from them when they were new to us. This ‘habituation’ dooms all attempts at sustaining ‘happiness’ that are based on continual ‘increase’. Like any drug addiction, we enjoy euphoria, but then require more and more to maintain that initial ‘high’. Soon the original positive effects wear off completely, and we are addicted to the drug merely to keep away withdrawal symptoms. The drug brings no more real satisfaction. But we are loathe to abandon the ‘pursuit’ of such ‘happiness’. We usually require some ‘crises’ to force us to take stock of the situation. To be forced to go through ‘withdrawal’. And then to keep a sober, wary eye upon our future desires, to avoid repeating the same destructive cycles.

By keeping our fundamental lifestyle as simple as possible, and focusing on the things that really matter, and bring real, lasting satisfaction, we can do away with most of the waste in our communities. We can then avoid most of the hard, dangerous, and soul-crushing ‘work’ we currently endure.

We can gain self-esteem in productive, generative ways. Not the fake self-esteem you can ‘buy’. But the sort of self-esteem, sense of self-worth, that you have to earn through honest effort, sacrifice, and risk.

Real beauty based on health, vitality, and fitness, rather than fake simulations of it attempted through make-up, and 'fashion'.

The way to feel secure is to become of value to others. To be of service to others. To contribute to the well-being of others. That is the way to being valued by others. And to feeling a sense of security. And of self-worth and self-esteem.

Society must be based upon reciprocation. Not some delusional notion of 'from each according to his ability, to each according to his need'. Everyone must earn their place in society, to the best of their abilities. There will need to be inequality of outcomes, as people are not born equal. And not all people are as ambitious and motivated to make the most of their holistic inheritances. So there needs to be inequality of status, privilege, and consumption, which reflects this natural, inherent, inequality.

But not inequality of access to basic health, education, nutrition, and housing.

And not inequality of consumption based on some assumed sense of entitlement.

No-one is entitled to consume 100, or even 10 times the average consumption in a society. No-one is entitled to inherit the right to consume more than others, simply by virtue of who their parents were.

Each member of society needs to have a motive to contribute with their muscles, their minds, their creativity, their effort, their risk, and their sacrifice.

Self-esteem is the basic motivation. To feel welcome, accepted, and approved of by those we live among, is the basis of true well-being.

To be free to express ourselves. To take creative risks. To seek truth. To seek beauty. That is the basis of real happiness.

You cannot 'steal' self-esteem or true security. You cannot 'fake' it. It comes from contributing to the well-being of others. It comes from good hygiene, mental and physical exercise, and good, disciplined, diet.

We must seek moderation in all things, including, as Bacchus reminds us, occasional moderation of moderation, and the indulgence in excesses, under the controlled and limited conditions of formal festivals of abandonment, where participants are free to consume alcohol, other drugs, and participate in sexual orgies. Or Finnish style 'car races' for the rev heads among us. Opportunities for releasing human impulses and desires that would otherwise find their expression in forms that are anti-social and destructive.

We need to ensure that skills, talents, insights, education, and training, are all as widely shared as possible, rather than 'hoarded' by their 'owners' in an attempt to gain greater status, privilege, wealth, and power.

In this way we will be more likely to recognise and celebrate inequality of talent, intelligence, and skill, rather than suffer the destructive cancers of envy and jealousy.

Castes and classes were not just attempts at concentrating wealth and power in exclusive groups. They were necessary to protect the 'tall poppies' from the malicious envy of the general population. Anyone with any special gifts, talents, or personal achievements, who was forced to grow up among 'the working classes', will understand what I am talking about. The self-delusions of the underprivileged that they are more just, kind, fair, and noble, are quickly abandoned by anyone who enters their world with any sort of obvious 'superiority'. Sporting talent is perhaps the only talent tolerated, as the average person feels that this is perhaps the only chance *they* and their children have of ever attaining wealth. And as such it is considered 'fair' and 'acceptable' for sporting heroes to become wealthy and 'successful'.

But what do sporting heroes really contribute to their communities? Apart from offering the 'dream' of escaping them, to those who see no other possible way out? People without unusual intelligence or talent, or beauty, have only one way to 'escape'. And that is sport. And it is less challenging to 'allow' someone to be superior at some sport, than to 'allow' them to be superior morally, ethically, or intellectually. For, after all, what is it but 'intelligence' that makes us all superior to the mere animals. In our own minds, that is. To 'allow' another to be more intelligent is to 'allow' them to be superior in a meaningful way. And that is too much for most people to stomach. Emotionally.

Scarcity has typically been leveraged into excess privilege, wealth, and power, in most human societies. This lead people to selfishly guard any 'secret' knowledge or insights they managed to accumulate. To 'rent' them out at the highest price they could obtain. To limit supply. To maintain this scarcity via 'guilds' and 'professions'. To patent this knowledge, and its products. To prevent others from gaining access to it. To increase its value for the owners of it. To leverage it into the maximum quantity and quality of privileges, benefits, wealth, and power.

That has led to our current oligarchical systems of exclusive wealth, power, and privilege.

However the Marxist idea of rewarding the lazy, undisciplined, unambitious, risk avoiding, selfish citizen with the same level of consumption as the hardest working, disciplined, ambitious, self-sacrificing, risk facing citizen, is absurd.

Appropriation of the surpluses of labor by the owners of the means of production is wrong. But so is appropriation of the products of the effort, sacrifice, and risk of the individual, by the group, without due recognition, validation, credit, and reward, being 'paid' to that individual, by the group.

You must understand that people enjoy denying 'superior' individuals such public credit, recognition, and reward, as they fear it will lower their own value, in the eyes of the community, relative to these 'superior' individuals. They see self-esteem, acceptance, and approval as a 'zero-sum game' in which one person can only gain at the expense of others. In this case the 'other' being themselves. The reflexively 'inferior'. Cutting down the tall timber, cutting down the tall poppies, bringing down the great, are all satisfying pastimes for the typical nominal supporters and promoters of 'Marxism'. We have to take great care never to allow history to repeat itself. To lose our most valuable resources. The talents, skills, intelligence, and ethics of the most ambitious among us.

For the wolf is the strength of the pack. As the pack is the strength of the wolf. We owe most of our current prosperity to the efforts and talents of a few individuals, whose products have accumulated over the millennia, to produce the technical and cultural advances we all enjoy. But which few of us could even replicate, and reproduce, let alone build up 'from scratch'.

In terms of moral leadership, and government, consider how many ancient and more modern society's benefitted from the talents and ethics of a particular leader, only to fall apart with the death or murder of that leader. We cannot allow the security and prosperity of an entire society to depend upon one or a mere few 'superior' individuals. We must ensure we honestly 'model' their behavior, to find out what it is that makes them, and their behaviors, so superior in attaining the outcomes we desire. We must 'mine' them while they live, to discover their secrets. Otherwise our entire society will be built upon a precipice, under a 'sword of Damocles'. For sooner or later we are bound to lose those superior individuals, those 'Pericles' that appear now and then, only to vanish, leaving us to return to the slavery, chaos, and violence that has defined most of human existence.

By modelling the 'superior' among us, we will also prevent them being able to opportunistically exploit their superiority over us. For they will lose any monopoly or oligarchical power they have over us. They will not be able to exploit their advantages, to leverage them into excess 'entitlements'.

The biggest challenge of course will be to face our *own* '*in*feriorities'. To look at ourselves naked, in the mirror. To accept that some individuals are 'morally' superior. More full of goodwill for others. More compassionate. More caring. More morally ambitious for themselves and their societies. More capable of acting fairly. More able to refuse unearned benefits. More able to accept their own limitations, and thus accept the need for regulation, by others, of themselves. Again, I ask you to please read my TROONATNOOR novels and non-fiction titles.

We must celebrate our 'betters'. While keeping their sense of entitlement within bounds. For no individual can produce anything on their own. All production is a social process. Please take the time to carefully consider all the arguments and facts presented in my TROONATNOOR books.

Goodwill tends to attend those with superior holistic inheritances. But it is fragile. Being victimized for working harder, trying harder, and being more competent, is likely to destroy that goodwill.

In any case such goodwill is rare. And where it exists, it is usually very limited in whom and what it encompasses. Rarely does it extend beyond an individual's own family and closest friends. It is hardly a basis to build a prosperous, secure, society upon.

Specialisation, corruption, and equality

Society is such a boon to us as a species, and as individuals, as it facilitates specialisation of roles, which massively improves our capacity to produce a wide range of high quality goods and services, as a society.

However specialisation often results in each regularly using only part of their brains, or their muscles, to the detriment of their holistic wellbeing. Health problems result for both the office worker and the factory worker, the ditch digger and the mathematician, due to excessive overwork of a limited range of their natural movements and actions.

Specialisation also leads to social inequity, inequality, and injustice in the form of the distribution of burdens / costs and benefits / privileges that are not respectful of the actual contributions each person makes to the wellbeing of others, and society as a whole. Compare the incomes of a stock broker with a school teacher or cleaner. The rewards system is often perverse. The manufacturer of tobacco products enjoys a luxurious lifestyle, while the child care or aged care worker barely survives.

In reality we could live quite well without a stock broker's services, but if people stopped cleaning public toilets, caring for the aged and children, we would be faced with huge social and health problems.

Corruption is human nature. Most people forget where the expression ‘corruption’ came from. Watch a dead animal decaying, or a fruit rotting. Corruption really has that effect on society. It cannot be tolerated.

While most capitalists readily quote Adam Smith when it comes to ‘free markets’, they rarely mention Adam Smiths’ warning that ‘It is impossible, for two or more businesspeople to meet, for any reason, for them not to conspire against the public good’. Conspiracies are real, natural, and pervasive. Everywhere, at all times in history, in all areas of society, people conspire together to serve their own perceived vested interests, at the cost of the ‘public good’. They are quite willing to accept tens of millions of deaths as the price of their personal gains. They are quite willing to allow millions of people to die horrible deaths, if it means they can increase their ‘net worth’.

So we must assume corruption will occur, and people will conspire, if given the chance. Therefore Adam Smith made it clear that the ‘invisible hand’ only works if we actively regulate to prevent, and expose, conspiracies and corruption. Otherwise we end up with oligarchies and monopolies ruling us. Which pretty much defines our current situation, due to our failure to prevent and expose corruption and conspiracies.

It might interest you to note that Adam Smith, the most quoted author among the Globalists, stated categorically that if business people lost what he thought was a ‘natural’ motivation to limit their business enterprises to their own nations, the ‘invisible hand’ of ‘free markets’ was doomed to failure. The ‘good’ that this ‘invisible hand’ automatically produced would be lost.

In other words free markets and globalism are incompatible.

Of course you won’t find many economists reminding you of these facts, which you can read for yourself in ‘The Wealth of Nations’, by the most quoted ‘free market’ economist of all time, Adam Smith. But why would you bother reading the most often cited books in the world? Surely you can trust all the ‘academics’ and ‘television presenters’ and ‘magazine editors’ to keep you informed? Surely they would never conspire against the interests of the public, or act in any way counter to the ‘greater good’? Conspiracies never occur. Adam Smith was just some ‘tin foil hat conspiracy theorist nut’, right?

Food and energy security

To kick start your food production, and provide food security as fast as possible, you will want to plant your first crops with speed of ‘seed to harvest’ in mind. Ideally the first crops will be as high in nutrition, protein, vitamins, minerals, and calories, as possible. The next consideration will be suitability for storage and preservation over the non-productive months when little more than mushrooms are likely to be viable crops.

Remember you can dry fruits, nuts, and beans. You can preserve most vegetables. Other vegetables will keep in a 'root cellar'. All these will be necessary to tide you over until your first spring harvests.

You can gradually convert your property to food forestry and raised vegetable gardens after you have established food security. The vegetable gardens will become productive almost immediately. The first stage of 'succession' of your food forest can also provide some short term yields, while is focus is more long term. If you have an existing 'farm', consider converting it at a rate of around 10% per year, to maintain income and food security from the existing set-up as you expand into your new no-till, no external inputs, generative gardening practices, in preparation for 'early retirement' from 'work'.

As soon as your property begins producing surpluses above your daily consumption needs, it will be time to consider how best to 'preserve' surpluses to cover you over future potential deficit seasons.

Water will be your first priority. To assume you have water reserves. To cover you in case of droughts, or other problems with your water supply, such as a contaminated water tank.

Second will be preserved, dried, and smoked foods. A root cellar will allow you to store potatoes, carrots, and the like, for many months at a time, without refrigeration. .

You should design 'pantry cupboards' with gaps at the bottom of their doors, and exhaust vents capped with wire mesh, to ensure a constant draught of air through the pantry. Air will be drawn in through the gap near the floor. This air will be colder than the air in the top of the pantry cupboard, and so the air pressure differential (warm air expands) will automatically draw in fresh colder air. The exhaust vents will vent the warmer air out, and as it leaves the pantry, it will 'suck' the colder air in from under the pantry door.

In colder climes, you can set up a 'winter fridge' on a window ledge. Or cut a hole in a wall, through which you can place your 'winter fridge'. This is simply a wire or wooden box whose room facing side is well insulated. You can either slide this box in and out, or put insulated doors on it that open out into the room. Thus your supplies are effectively 'outside' in the cold, but you can access them conveniently from 'inside'. The insulation on the room side will keep the cold out. The wire mesh or wooden box will protect the supplies from hungry foragers.

A simpler option is a 'window box' fixed to the outside ledge. You open the window to gain access to your 'winter fridge'.

The simplest method of all, which I have practiced for over a decade, is simply supermarket shopping bags handing on the window ledge. Double them up, and loop another two bags through the 'handles' and tie a knot. The plastic is so thin you can close the window over it, without reducing the window seal at all. The knot is just a back-up, in case the plastic did slip. It wouldn't be able to pull the large knot through. But it has never slipped so far.

In summer I place a wet towel over my groceries, and place them in the sink, or in a large pot. The water evaporates, reducing the ambient temperature, and thus naturally cooling the surface. This is the same way that 'sweating' works for animals that sweat, like humans. Changing the state of energy-matter-consciousness effects a change in ambient temperature. This reflects a change in ‘state’. A change in ‘energy’ levels, as energy is converted from one ‘form’ (as we perceive things) into another, such as from mass to heat, to light, to sound.

Trade policies

We will need to interact with the 'outside world' using money...so find ways to reduce the need to 'import' goods and services i.e replace with local goods and services, ideally ones you can produce yourselves, while seeking 'cash crops' and 'marketable services' e.g seminars, workshops, training courses, retreats, guest accommodation, or any work you can do 'on-site' e.g on internet, skype, remote workplaces...

As an aside, I’d like to draw your attention to the way in which the World Bank destroyed most ‘third world’ nation’s sovereignty. Along with the IMF, they behaved as ‘economic hit-men’.

They made huge loans to corrupt government officials to invest in inappropriate, generally pointless, large scale construction projects. Most of the money was directed into the hands of a few corrupt politicians and business people. One of the conditions of such loans was that the nations convert their agricultural production to one, or at best, a few, ‘cash’ crops. Crops like sugar, rubber, and tea, that could be sold in foreign export markets to generate the cash necessary to pay back the loans, plus interest.

The World Bank soon had most third world nations growing the same crops. Oversupply led to a crash in prices. The nations were left unable to pay back their debts to the World Bank and IMF. The IMF and World Bank then forced these nations, as a condition of making further loans, to repay the original loans, to adopt de-regulation of their markets, and massive ‘austerity’ policies which savagely cut into public programs like health, education, and pensions, and led to the privatization of public utilities like water.

Basically the result is that the IMF and World Bank became the ‘de-facto’ World Government. They are extending that power to the ‘developed’ world via the new ‘trade’ deals, and upcoming worldwide financial meltdowns.

The local farmers in these nations were driven off their land, and reduced to working as tenant farmers, little more than slaves, for the large corporate land holders and fruit corporations.

Any ‘independent’ farmers were soon in debt to buy seed and fertiliser from the huge Agri-business corporations. They were forced to sell out to the agri-business corporations.

In many cases it became a criminal offence to plant anything for local consumption. Fruits and vegetables to feed the local population had to be imported. Many families have been reduced to ‘selling’ their children as ‘bonded labor’ to the corporations.

This is pretty much what the rest of the world has to look forward to.

I will dedicate another chapter to explaining how the 6 main agri-corporations are today petro-chemical, bio-tech companies, like Monsanto, and DuPont, and how they are gaining total control of your food supply, and perhaps more sinisterly, your *seed* supply. The implications are perhaps the most shocking I have ever stumbled upon during my research into 'The New World Order'. Many of the books I spent years researching and writing have already been 'blocked' by Amazon, Apple i-books, Smashwords, Draft2Digital, Barnes and Noble, and so on. If that doesn't make you curious to read those 'banned' books, then I guess you really are the 'dumb cattle' your New World Order masters define you as.

How to ensure reciprocation, the basis of any a society based on justice, fairness, and meritocracy?

Humans are talented at weaseling their way out of any principle. Such as the Christians, and Buddhists, whose behavior is so at odds with the teachings of Jesus and Buddha.

Exceptionalism is the norm among people. Few 'Jews' take the Mosaic Law, including the '10 commandments', or Obadiah's 'As you do unto others, so shall be done unto you', to apply to non-'Jews'. The golden rule is at best limited to people of your own tribe, religion, or social class. At best. More often than not it is completely ignored. War-crimes committed by your allies, or your own nation, are considered 'necessary evils', even though they are demonstrably not necessary. Merely convenient.

On an even more prosaic, everyday level, there is the problem of social justice.

Most Marxists are either at the bottom of the socio-economic scale. They were never truly Marxists. Only when it became clear to them that their attempts to opportunistically exploit their fellow humans, as part of their struggle to climb to the top of the capitalist system, were doomed, due to them having no 'rentable' capital, talents, or beauty to leverage in the market place, they saw that they had nothing to gain from capitalism, and could at least enjoy the satisfaction of 'cutting down the tall poppies' and appropriating the surplus value others had produced, for themselves.

They could define their opportunistic acts 'social justice'. Though an interest in pursuing any principle of justice played no part in their calculations of purely *self* interest.

Those less fortunate can often simply not bear to see others enjoying superior fortunes. As soon as they realised that their 'ship' had sailed, and was never 'coming in', that they were never going to emulate their idols of wealth and privilege, they became embittered with the system that had promised them the chance to become slave masters, but only left them as slaves. As any 'ponsy' or 'pyramid' scheme is doomed to do.

Everyone wants to enjoy the fruits of other people's effort, sacrifice, and risk. Few people want to reward the few people whose effort, sacrifice, and risk 'pays off' in the form of hit songs, best-selling novels, box office hit movies, or scientific discoveries and technological breakthroughs.

The Marxist has learned many ways to dismiss the rare creative success as 'pure luck'. They will claim that the work of genius was 'easy' and merely due to 'talent'. They will ignore the facts about the artist having lived in poverty for years, sacrificing everything on the off chance of success, while the 'average' person enjoyed an easier, more comfortable life, with much higher consumption and benefits. They will dismiss the facts. Because they themselves have always taken the easiest, most rewarding path offered, they can't even imagine the ordeal the creative artist, scientist, inventor, and writer go through to produce their achievements.

And anyway, they envy them their achievements. Their earned sense of achievement. Their earned self-esteem. After all, its not fair that some people have more potential, is it? Surely people should be 'shamed' for being 'superior' in any way to the lowest common denominator Marxist? They should hide their light, to avoid making the Marxist feel inferior, shouldn't they? How dare they parade their superiority around, shoving it in the face of the Marxist, who must as a result endure feelings of inferiority? At very least shame at being so lazy, so morally unambitious. So morally cataleptic. So fearful of taking any chance, of appearing foolish, of 'losing face' by failing at something.

Who would appreciate the thousands of failed attempts of the creative person, when they themselves never risked anything for fear of failure, and embarrassment? All the Marxist sees is the final product. Not the process.

They are unwilling to pay honestly for the *process*. They want to get away with paying just for the result. As it if came from a few hours easy, comfortable application of genius and talent.

They will argue that, as this particular song, invention, breakthrough, book, or idea appeared on a particular day, the person has only worked one day for it, and should only be paid for that one day.

Failing to realise the creative process is one of constant, laborious, repeated failure, and only occasional breakthroughs of insight, understanding, intuition, and creativity. A process that lasts years. A process that will usually go unrewarded.

And so not only is it fair to pay for the process, and thus reward the occasional 'successes' with the equivalent of many years' salary for a person of equivalent intelligence, talent, application, and effort. It is necessary to pay for the risk involved. The likelihood that those years of desperate application, sacrifice, and risk, were never going to rewarded at all.

In other words to pay for the process of all the people who made the effort, made the sacrifices, and took the same risks, that were never rewarded.

That is why it is just to reward the creative person with the equivalent of many years' salary. Or to pay for the process. But then how to determine who should be supported? Who is likely to succeed? Surely nepotism is going to run rampant. Favoritism. Racism. Sexism. Religious bigotry.

So we are bound to face a dilemma. The Marxist wants no-one to be smarter, better looking, more morally ambitious, more ethical, or 'superior' in any way, to themselves. They demand this as a right. To 'cut down the tall poppies'. And worse, to have the fruits of the efforts, sacrifices, and risks of others who are innately driven to excel, to achieve, to create, to innovate, to take risks, to improve their world, for free. Just to soothe their wounded egos. Their sense of injustice at having been born 'average', or worse, 'below average', in looks, intelligence, and general good fortune.

Marxism is malicious. A weaponized ideology. Disingenuous on the part of its 'creators'. A tool to 'divide and conquer'. And if you are willing to accept it, a deliberate strategy of the Zionist Freemasons to gain control of the entire world, as part of their plans for their 'New World Order'. And if you look at the facts being withheld from you by censorship, you will likely see that it is a 'Jew' world order.

Humidity and comfort in relation to heating

Humidity refers to the relative concentration of moisture, in the form of water vapor, in the air. High humidity slows down the evaporation of sweat, the mechanism by which humans cool down.

The change in state from liquid (sweat) to vapor (evaporated sweat) uses up ambient energy, decreasing ambient air temperature, and surface temperature. In the same way that the sunrise, heating up dew, turning it into water vapor, cools down the surface, making sunrise the coolest time of the day.

The reduction in the efficiency of sweat as a cooling mechanism when the air is already relatively 'full' of moisture, means that, given any absolute temperature, we tend to *feel* warmer if the relative humidity is higher. Especially if there is no breeze. I am immediately reminded of my time in South Korea.

So we should design our homes and floorplans to minimize exposure of the interior to excessive sunshine, and ensure cross-ventilation drafts, the equivalent of a breeze. The further apart the intake and exhaust vents are, the stronger this breeze will be. However air will take the shortest route, so often you will feel cooler by *closing* some windows.

Growing the amazingly versatile Protein powerhouse Soybean (then turning it into milk, tofu, tempura, and soy sauce.

Soybeans are perhaps the most versatile garden crop you can grow. You can turn them into soy milk, tofu, tempura, and soy sauce. You can roast them, grind them into flour, and use them like you would any grain crop. They offer a perfect balance of all the essential amino acids. If you are looking for a concentrated source of 'perfect' protein, then you need look no further. Soy flour is over 40% protein.

All this in around 60 to 100 days from planting to harvesting.

And like all legumes, peas, and beans, soybeans excrete sugars through their roots which feed bacteria, including rhizomes, which will colonise the roots, and 'fix' nitrogen out of the air in the soil, which is immediately bio-available in the soil, for the soybean, and other plants, to absorb. And then when the plant bodies are 'chopped and dropped' as mulch, this nitrogen will be returned to the soil.

Soy beans won't sprout in temperatures below 50 degrees Fahrenheit. So place the seed tubs somewhere warm. If you live in a colder climate, chose the warmest, sunniest position, taking advantage of the warmer micro-climates around your home and property, such as those produced by compost heaps, thermal masses like ponds and rock walls, and sunny corners protected from cold winds.

As soy plants do best in temperatures of around 75 to 80 degrees Fahrenheit, if you live in colder climes, wait until the end of spring, or start of summer, before beginning your soy crop. If temperatures remain below 60 degrees, the plants won't flower or 'fruit' well.

Grow soybeans from raw (unroasted) dried soy beans. Soy beans less than a year old, from last year's harvest, will have a much higher germination rate than seeds older than a year.

To really boost the germination rate, and health of your crop, 'inoculate' the soy beans with rhizobia bacteria before planting. Simply place them in a container with this culture and shake the beans around until they are each covered in the powder.

The beans are the 'seed' of the soy plant. Simply take some soy beans and soak them in water for around 6 hours, until they 'plump up'. They should then take about 3 days to germinate and sprout. If you choose not to soak them, it will take about 10 days for them to germinate. So soaking them ultimately speeds up the total time from planting to harvesting by about a week.

Be sure to wait until there is zero chance of frost. For although soy seedlings can survive a light frost, it is better not to take the risk.

Wait until it is warm enough to facilitate a fast germination The problem is that the planted 'seeds' are susceptible to disease and insects while waiting to germinate. To ensure maximum, speedy germination, sow the seeds at around 2.5 to 4 cm, so there is full 'seed to soil' contact for each individual soy bean you plant.

Place these in your greenhouse or garden shed. The soy seedlings will grow three leaves at about 3 weeks. This is a signal that it is time to transplant them to your garden. Be sure to finish this before the leaves turn yellow.

Plant the seedlings in 'trinities', with each group of three forming a teepee around a stake. As the plants grow, manually brush off and insect eggs and larvae that appear. When the plants are wet, avoid brushing them with your legs as you walk by, as you can spread fungal diseases this way.

Unlike other beans, soy beans do not need to be trained to poles.

Plant the seedlings in rows, and then water them. Keep the soil moist and uncompacted.

As long as the temperature remains over 60 degrees Fahrenheit, in around two or three weeks colored flowers will appear on the plants. Then over the next three weeks they will continue flowering as they grow larger plant bodies.

This flowering stops when the plant begins devoting its energies to producing 'seeds'. The soy beans that are our crop. While the soy plant gets its nitrogen from the rhizomes it 'feeds', it will benefit from any sources of potassium and sulfur you might be able to offer it.

In around four weeks the bean pods begin to grow thicker and rounder.

You can harvest the soy beans while they are green, and cook them green, or leave them on the soy plant until the leaves and pods dry out and turn brown.

You can speed up this process, as soon as the bean pods are fully grown, by trimming off any excess plant leaves and mulching them.

Like any other beans, if you want to ensure a constant supply of fresh beans, plant the seedlings a week apart, so they become ready for harvest in weekly ‘waves’.

Such a ‘succession planting strategy’ can be applied to all your kitchen garden crops. In this way you can ensure a continuous supply of different vegetable, fresh out of the garden, rather than go through periods of glut and excess.

You can start planning well before planting. Work out when your last and first frosts are likely to occur. These will determine your first plantings ‘outside’, and your last harvests.

Here is an example of forward planning for my favorite vegetable, broccoli. It is high in protein, vitamins, and minerals. Easy to prepare. And delicious. Broccoli seeds take about a week to germinate. It will be another 3 weeks or so before the seedlings are ready to be transplanted into your garden. If you add a ‘buffer’ of 2 weeks or so, to account for any ‘delays’ in the process, you find you can start planting broccoli in your green house or hot box around 100 days before the end of the last winter-spring frosts. Basically a little over 3 months.

Work out what you goes well with broccoli, and plan to have it ready for harvest around the same time as your broccoli.

‘Stagger’ out the planting times, and you will have fresh broccoli to harvest throughout the growing season, right up to the first frost. No need for storage or refrigeration. You will get the tastiest, most nutritious vegetables directly from your garden, ‘just in time’.

Some vegetables like potatoes, cabbages, and leaks can be harvested right on into the start of winter, for great cold-weather baked potatoes, and potato and leek soups. Of course cabbage is a favorite for preserving, in barrels or underground, in Sauerkraut and Kim Chi. Such foods are nutritional powerhouses, rich in vitamins and minerals, and great sources of winter carbohydrates. And never forget that it is easily possible to meet all your protein needs from a totally vegetable based died, even without any beans. Read my book ‘The Protein Plague’ and be prepared to be pleasantly shocked by how much high quality protein is in vegetables as unsuspecting as spinach, let alone how rich in nutrients and high in the full suite of essential amino acids beans like Soya are.

Now you know how easy it is to grow your own Soy beans, here are some easy ways to turn your soy beans into a variety of delicious, extremely nutritious, alternatives to animal products such as milk, cheese, yoghurt, and milk. You will soon see why soy beans should become one of your ‘staple’ crops. You will be surprised how far a few soy beans will go, in terms of meeting your dietary needs, and satisfying your taste buds. They are so abundant in flavor, nutrition, and protein, that a little soy goes a long, long way.

These chapters are taken from my book ‘The Protein Plague’. If you are interested in health and nutrition, that book should be of great interest to you.

Making soy milk and Tofu at home

One of my pet gripes has been the excessively high cost, and often sheer lack of availability, of soy milk in most supermarkets.

Until recently it was only large, non-vegan companies selling soy milks as a complement to their dairy products. They were either taking advantage of a lack of competition, or deliberately pricing their products above their dairy products, in order to ensure that only people that were lactose intolerant, or allergic to dairy, or very keen health and vegan enthusiasts, would buy soy milk. They wanted to ensure full spectrum market domination without encouraging people to switch to soy milk.

Of course recently other competition has entered into the soy milk marketplace, and at least in Germany, it is possible to buy a liter of soy milk for not much more than the dairy equivalent.

However there is something seriously wrong here.

For you will discover that soy milk is massively cheaper to produce than dairy milk, despite that most of the ‘work’ is done by slave labor. (Cows).

The great news is that it is really easy to make soy milk at home, using the pots and pans most people already have.

It will cost you less than 20cents a liter.

For example you will get around 16 liters from a small bag of beans costing you a dollar and sixty cents. That equates to 16 cents per liter.

And if you buy your beans in bulk, in larger bags, the cost savings will be even greater. Soy beans keep a long time without refrigeration. Just keep them in a typical kitchen cupboard or pantry.

You can buy direct from your favorite soy bean grower, to ensure you are getting the best quality, non GMO, organically grown, beans from farmers who take care of their soil, your environment, and their workers.

I wonder if one day there will be all manner of soy bean ‘roasts’ and ‘types’ like you get today with coffee beans? I have to check this out. Already ‘dry roasted’ soy beans are preferred by most people, for their flavor. I am sure a whole culture will grow up in the west around this new bean, and a whole bunch of drinks will emerge. Remember that soy beans were once used as a coffee substitute, and are today used in candy bars!

You will also save the environment, by eliminating packaging that represents a waste of materials, energy, and poses all the problems of waste disposal, including air and water contamination, and transportation to incinerators and landfill.

You will be able to tailor your milk to your own tastes and needs, making it thicker or thinner, and adding whatever flavors you wish. You will not be forced to consume artificial colors, flavors, or preservatives. You can decide exactly how sweet it will be. You can decide exactly how much salt to add.

You can experiment with your own custom blends of different ingredients. You can go ‘complete protein soy’ from the start, or mix up a complementary blend of amino acids and nutrients using different seeds, nuts, and grains.

You can ensure a complete complement of vitamins, minerals, carbohydrates, and proteins, by combining a variety of nuts, seeds, and grains.

You can then use the soy milk to make traditional tofu, or use your own custom blend to make '*your*-fu'.

This guide has a chapter devoted to making tofu at home.

The traditional *Japanese* method of making soy milk, Tofu, and 'Okara' at home

Soak your dried soy beans overnight in water, allowing about 3 cups of water for every cup of soy beans. Ensure that the beans are covered by at least 10cm of water.

Depending on the room temperature, they will need from 8 to 12 hours to thoroughly re-hydrate to around three times their dry size.

Soaking them longer, say for 24 hours, apparently makes them even more nutritious.

Sprouting the beans adds even more vitamins and minerals.

And for the absolute in convenience for the laziest of us, some modern soy milk machines even let you avoid the soaking, and simply open up your packet of dried soy beans and pour them straight into the machine.

We will consider this factor, and the other various merits of the different soy milk machines in a moment. But for now back to the 'hands on', traditional approach.

When the soaked soy beans are ready, they will readily break into two halves when you rub them between your fingers and thumb, and the skins will easily rub off. However there is no need to break them into half or rub the skins off. This is just a way to test if they are ready yet.

The soaked soy beans will have taken on a more yellowish color.

Now rinse the beans in cold water.

Then place the beans in a blender. Add about one half of water per cup of beans. Blend on high for around 30 seconds.

Pour this mixture into a pot. Rinse out the blender a few times with water, pouring this water into the pot as well, to increase the fluid content a little.

Heat up the mixture on medium to high heat until it comes to a boil, stirring as it heats up. Once it reaches boiling point turn the heat down to low, and keep stirring as it simmers for around ten minutes. You can either spoon off the froth or mix it back into the mixture.

After about 10 minutes, turn off the heat.

You will now want to strain the mixture, to separate the fluid 'milk' from the 'Okara', the soy residues.

Be careful, as the mixture will be hot. You may want to wear rubber gloves.

First place some cheesecloth (use 3 to 5 layers), muslin, or any similar material over a large metal strainer, and place that strainer over a large bowl to collect the soy milk in.

When you pour the mixture into the strainer, most of the liquid will immediately strain through the cheesecloth and strainer into the bowl.

But you will now have to pick up the corners of the cheesecloth, bring them together, and then twist them around, compressing the cheesecloth, and forcing the remaining soy milk out from the 'Okara' and into your bowl.

The milk will have around 10% soy content.

The fresh 'Okara', the remaining soy grinds, can now be used in stir-fries, baking, and so on. They are very nutritious, mild in taste, and will take on the flavor of whatever you cook with them.

Okara is rich in fiber, calcium, and protein. So whatever you do, don't just throw it away. If nothing else, then simply stir it into a soup, to thicken it and add valuable nutritional value.

You can drink the milk immediately, enjoying a vegan hot chocolate or café latte.

Otherwise leave it to cool before enjoying it.

It will keep well without refrigeration for several days.

However like most drinks, it tastes best served cold.

Converting soy milk into delicious and nutritious home-made tofu

Fresh home-made tofu is just that much better than store-bought tofu. They do not bear comparison. It has a superior clean and delicate flavor that simply melts in your mouth.

It provides the perfect basis for delicious stir-fries, or blended up it will make the smoothest smoothies you can imagine.

It is important to note that because of the way supermarket or health-food shop soy milk is processed, it cannot be used to make tofu. It simply will not 'curdle'.

Tofu is basically soy 'curds'. To get the soy milk to 'curdle' (coagulate) you need to add a coagulant such as calcium sulphate (gypsum), traditional nigari, or simply use lemon juice.

Dissolve three to four teaspoons of whichever of these you chose, in a cup of warm water, and keep it standing by. You will add it after heating the soy milk.

The benefit of the gypsum is that it adds nutritional calcium to your tofu. The nigari is more traditional. Of the three you are most likely to already have lemon juice in your kitchen, and it will add vitamin C to your tofu.

You heat the milk to about 70 degrees Celsius. If you don't have a thermometer, then simply bring the milk to the boil, and then remove the heat, allowing the mixture to cool for 3 minutes.

Now add half the cup of gypsum / nigari / lemon juice mix. to the soy milk, stirring it in as you add it, using a gentle, gradual stirring action, first in one direction, then the other, then back and forth, and finally in a figure of eight in one direction, and then the other. The more gradually and gently you add and mix the coagulant to the soy milk, the softer, fluffier, and silkier your final product will be.

Turn the heat back up, while continuing to stir the mixture gently. It should start separating within a few minutes.

If, after adding this second half, the liquid that separates from the tofu is still not clear, but rather milky looking, then add the second half of the gypsum / nigari / lemon juice mix.

Once the mixture starts separating into tofu and a clear liquid, turn off the heat, and cover the pot.

Leave the tofu to continue separating for another 10 to 15 minutes.

While you are leaving it to set, line a steamer pot with some cheesecloth, muslin, or other material.

Once you have separated the tofu from the clear liquid, place the mixture in a container that will allow excess liquid to drain away.

You can use tofu kits, or simply punch a few holes in the bottom of an old plastic container. Your tofu will take on whatever shape the container is.

You can buy lovely wooden tofu kits. You place your cheesecloth in the base, and then fold it over the tofu. You then place the top of the kit on top of the cheesecloth, adding a weight on top so that it presses down upon the cheesecloth, compressing it, and thus squeezing out any excess liquid, leaving only the tofu. You leave the tofu to drain and firm up for about 30 minutes.

You then turn the kit upside down over a container full of cold water. The colder the better. Allow the tofu to fall out into this container of cold water. This will ensure your tofu firms nicely.

Store the tofu in water in the fridge. Change the water each day. It will keep fresh this way for about a week.

Now you are set to experiment with tofu lasagna, puddings, brownies, quiche, scrambled tofu, soups, stews, casseroles, baked tofu, pan fried tofu, stir-fried tofu, smoothies, puddings, pies, muffins, and so on.

Experiment with other beans such as chick-peas. Chick pea tofu is a delicious alternative to soy tofu. It is a great way to add variety to your menu, and avoid ‘overdoing’ the soy.

Don’t get fixated on Protein

Remember that there is no need to ensure you consume all 9 essential amino acids in the same meal, or even on the same day. The modern consensus is that as long as you eat a variety of plant based foods, across a period of several days, you will provide your body with the optimal nutrition, including protein, which it requires for optimal performance.

With ‘milks’ it is just so easy to blend nuts, seeds, and grains together, so that the nutrients of each complement the other.

If you are soy intolerant, or worse, have a soy allergy, then have no fear, for there are many tasty, nutritious alternatives to soy milk.

It is so simple to ‘complement’ the protein contents of grains, nuts and seeds.

For example, simply by using rice or oat ‘milk’ to make pancakes, you are automatically combining and complementing proteins, as you are effectively adding rice and/or oats to flour.

However if you are limiting your calorific intake, and eating very little, then soy milk or soy powder added to your pancake mix will ensure you get your daily requirement of around 25g of complete protein. In fact simply drinking one liter of soy milk will provide that.

For most Westerners, it is more about reducing how much protein we eat, rather than worrying whether we are getting enough. Our problem is an excess of protein in our diets and the associated problems earlier identified with 'protein overload'.

The only time you need to take any care is when you are strictly reducing your overall calorific intake, and not eating very much at all.

In those cases 50g of soy flour, or a liter of soy milk, will ensure you get all the protein you need.

Turning sewage into natural gas and filtered water

All around the world, from the most remote African or Indian villages, to the backyards of middle class U.S suburbia, you will find some form of 'anaerobic digester' producing 'free' natural gas from organic wastes.

The larger ones incorporate sewage treatment into bio-gas, converting human solid and liquid wastes into gas for cooking, heating, and lighting.

All that is required is a means to transport the liquid and solid human waste into the anaerobic digester. If homes are already hooked up to a sewage system, all that is needed is to build this digester at the end of that existing system.

At its simplest, it is a concrete pit with a dome above it, to collect gas. The dome can be flexible, like the huge gas storage facilities you will see around London, or a simple fixed concrete dome, more suitable for a desert village.

The liquid and solid human waste is diverted through a 'maze' of channels of rush beds planted in a 40cm deep algal pond. Algae is high in protein, and excess algae can be harvested from this 'baffled' pond for use as a fertiliser. One day you will probably be eating it as a 'protein booster' in everyday processed foods.

Without the maze, the pond would need to take only fairly unwieldy proportions. The intention of this maze is the same as the 'baffles' connected to the exhaust of a typical automobile combustion engine. To increase the length of the 'route' the wastes must travel, and thus the time spent in the maze, without having to excessively increase the size of the facility.

It is another example of 'crenellation' and increasing the surface area / length of 'border zones' where different systems can interact over the longest distance.

The rushes that form this maze, and which give the algae time to decompose the human wastes, as they make their journey from start to finish, will flourish, and provide an abundance of craft, construction, bedding, building, and mulching materials.

The water, having been more or less 'purified' by bacteria during their journey into the heart of darkness, and back out into the light, can then be allowed to seep down into artificial wetlands for further 'processing', or into orchards, food forests, and timber forests.

Most things about our world 'baffle' us in the same way. The truth is out there, waiting to be 'harvested'. Only you are forced to travel through a literal labyrinth no different to the one in the David Bowie film of the same name. My TROONATNOOR books will get you through that maze in no time at all. If you have the emotional courage, that is. People tend to hit a 'glass ceiling' based on their emotional courage and willingness to pursue the truth, long before they ever reach their intellectual limits. The world is full of ignorant, foolish, high IQ types. They find top jobs with the New World Order as academics, television presenters, movie directors, writers, teachers, and publishers. Many have no idea what harm they are doing. Most are borderline socio-path / psycho-paths who don't really *care* what harm they do. As long as they get paid and laid.

Set up your own local, and international, seedbanks and seed libraries

Even though European 'seed' laws have gone insane, at the insistence of a World Bank committed to centralizing every imaginable power under its umbrella 'New World Order' organisations, and driven by agri-business lobbying (corruption), you can still find many seeds 'online', using 'peer to peer' sites, blogs, and vlogs. If you manage to get your hands on 'banned' seeds, be sure to propagate and store them yourself, to ensure that we build up a collective, de-centralised, seed bank. At the moment only the very wealthy elites have seed 'vaults' around the world. At any moment they could make any and all seeds unviable, through extinction, genetic manipulation, and manipulation of the soil (cloud seeding with contaminants like aluminum, and the usual Monsanto poisons ranging from agent orange, to DDT, to PCB, to 'roundup'), and other forms of geo-engineering. It is up to us to maintain as many 'heritage' seeds as viable as possible.

Corporations like Monsanto have excessive power, and thus freedom from regulation, and the ability to lobby to have their 'competition' regulated. There is a 'revolving door' between the FDA and corporations like Monsanto similar to the revolving door between the U.S government, congress, and senate, military, and the military industrial complex. Monsanto is part of the 'Agri-chemical complex'. So the person making decisions regarding Monsanto products, and markets Monsanto operate in, either was recently, or will soon be, an executive of Monsanto. So while working for Monsanto they will say that 'research into the safety of Monsanto products is the responsibility of the FDA. Then when they are heading the FDA, they will claim that no research into the safety of Monsanto products is required of the FDA, because Monsanto can be trusted to have the welfare and health of its customers as a priority.

One of the nasty malicious acts Monsanto lobbyists have had enacted in the U.S is to have free seed libraries effectively shut down. They lobbied for, and got, new laws which made it illegal to 'distribute' seeds without first carrying out germination testing, and meeting strict labelling guidelines. All of which cost money the free seed libraries didn't have. This is of course grossly ironic given that Monsanto lobbyists have successfully blocked all attempts to force food companies to label foods containing Monsanto GMO products, despite continuing public demand for such mandatory labelling laws.

Of course Monsanto have made it a criminal act to save any Monsanto seed, to ensure their customers are dependent upon them for seed. And to make it possible for Monsanto, the New World Orders future food supply monopoly, to ‘pull the plug’ on anyone, anywhere, anytime they choose. This is the ultimate power. The ultimate control strategy of the New World Order. It is the real sword of Damocles hanging about our heads.

And if you think that the few independent, non GMO farmers out there will provide a safety net for you, then think again. It is very hard to keep GMO plants from cross-pollinating with non-GMO plants. And it is legally, thanks to the corruption inherent in today’s U.S politics, the obligation of the non-GMO farmer to prevent this. An almost impossible task. Then once their non GMO crops are ‘infected’, they must destroy all the seeds that crop produces, or face civil and criminal prosecution at the hands of the world’s nastiest, most ultra-malicious, and ruthlessly merciless, mercenary, corporations and legal prosecutors in the history of humanity.

Go to saveseedsharingDOTorg and seedlibrariesDOTnet for more details about seed sharing and seed libraries.

Ideally you will collect 'residential heritage seeds’ of the plants that have so far proven most adapted to your actual site. Over time you will naturally select those plants with the best genetics, given your actual, local conditions.

Inoculating seeds and seedlings with fungi spore

Different plant seeds benefit from different forms of ‘inoculant’. Sometimes a sapling’s entire root system is ‘inoculated’ for the same reasons.

Mycorrhizally inoculated seeds, and roots of plants inoculated in the seedling tubs, will establish themselves much faster than they would otherwise, show greater survival rates, resilience, and growth rates.

Paul Stamets, has written extensively on the subject. You can also find mycoforestry resources online.

Harvesting seeds from your own plants

Let’s begin with one of the most popular of kitchen garden plants. Tomatoes.

If you cut open a tomato you will note that the seeds are contained in four or five cavities filled with a sort of ‘gel’. This gel acts as a ‘germination inhibitor’. Left to itself, the ripe tomato would fall to the ground where it would rot. As it rots, the fermentation process would neutralize this gel, allowing the seeds to germinate. However only after some time, during which the seeds would normally have had a chance to ‘spread out’, so that all the seeds would not end up sprouting at the same point, competing with each other for resources such as sunlight, moisture, and real estate.

To replicate this natural process, and prepare tomato seeds for storage, cut the tomato down from the stem, then spoon out the slurry of seeds and pulp into a cup. Ensure you have enough ‘juice’ in the mix for fermentation to take place, and mold to form on the mushy mass. One tomato should yield about 60 seeds.

Mix in equal parts water, so you have a 1:1 mix of tomato and slurry. Place a coffee filter over the cup, and put a rubber band around the top, to seal it. The paper filter will allow the mix to breathe, and remain oxygenated. It will keep a lot of the 'stink' in, but there may still be a powerful odor, so it is best to leave it three to four days to ferment, and for mold to grow on it, somewhere strong odors won't become a nuisance.

It is a balancing act to ensure that the seeds don't become anaerobic. But too much exposure to air can damage the seed germination, and you will get too much mold. And a lot of 'stink'.

After three or four days a thick mold will have formed on top of the seeds. Take the coffee filter paper off the jar, and spoon off this mold. All the 'viable' seeds will have sunk to the bottom of the cup, leaving any 'dead' seeds floating on the top.

Remove the 'floaters', as they will not be viable. Then pour out the remaining contents out into a strainer. Rinse the cup a few time until you have gotten all the remaining seeds out of the cup, and in the strainer. Rinse the strainer until nothing but seeds are left. Spoon these seeds back into the cup. Fill the cup with fresh water. Any debris will float to the surface, along with any non-viable seeds.

Carefully pour off this 'residue', ensuring the viable seeds remain safe at the bottom of the cup. Then continue pouring until you have removed most of the liquid. Then spread out the viable seeds on wax paper to dry. Flick the bottom of the upturned cup with your finger to 'shock' the seeds free from the cup. The wax will ensure that the seeds do not stick to the paper. Spread the seeds out on the wax paper with a dry spoon so they form a single layer. Then leave them to dry out naturally. If they won't de-clump, wait until they are dry, and then gently roll the clumps of seeds gently between your fingers to de-clump them.

Then leave them another 48 hours or so to ensure they are dry, before storing them away in little paper envelopes, in a cool dark place.

Write down any details concerning the seeds, such as the tomato plant type, any observations on that plant's health, vigor, and the flavor and texture of its 'fruit', and the date.

One 'rule of thumb' is to take the seeds from the fruits and flowers that ripen and blossom first and strongest. These often have the most 'viable' seeds. However once you have these sees 'in the bag', consider taking seeds from the plants that produced the tastiest fruit or vegetable. As these seeds will be in the crop you harvest, you only need to remember, before eating them all up, to save a few for this purpose. Or to allow a few plants among your kitchen garden crop to 'go to seed', rather than harvesting them all for consumption.

If you keep seeds from a variety of the healthiest, best growing, fastest growing, or most promising flowers, fruits, and plants, you will ensure a wide diversity of seeds. This is a basic principle in our approach to gardening. Complexity. Diversity. Redundancy. Never becoming dependent on any one source of any particular good or service.

Keep in mind that many garden plants, including beets, Swiss chard, and cabbage, only produce seed once every 2 years.

To collect beet seeds, wait for a seeding year, or allow a few specimens from a non-seeding year to grow to a short height, then pull their bulbs up and cut their leaves off. Store the bulbs in sawdust, in a cool dry area. Wait for late spring to plant the bulbs. This year these saved bulbs will send up a flowering stalk from which you can harvest seeds. You will get 6 seeds from one such seed kernel.

For cabbage and Swiss chard, wait until a ‘seed’ year, or cut a few specimens of this year’s non-seeding crop as soon as a nice solid head of cabbage has formed. Cut it off just above, and parallel to, the ground. Trim any yellowed, dead leaves. Store the heads in a cool dry place until next spring, when you will place them down on the garden bed, and cut a 5cm ‘X’ across the top of the head. A flowering stalk will grow up out of the head of cabbage, from this ‘X’. Three cabbage heads prepared like this will provide thousands of seeds.

If we are growing tomatoes then we will probably be growing Basil, and capsicum. As ‘guild’ ‘companion’ plants, and for the culinary compatibility.

Cut a few stalks of basil with its white flowers and seed. Strip the leaves from the stalks. Place the stalks with the flowers and seeds still intact in a paper bag on top of a shelf or cupboard. Write down the plant type, e.g Basil, and where it was taken from i.e, where the Basil is located in your garden. Write down the date of harvest. After about a month, strip the flowers of seeds, rubbing them off into a bag. You now have enough seeds for next year’s crop.

Take the capsicum seeds out of the best capsicum specimen you can find before you eat it. Lay these seeds on cookie sheet in a dark area out of direct sunlight. Leave them to dry for one or two weeks.

Fruit seeds are easier. Just remove them and let them dry out of direct sunlight. As an example, a dozen or so watermelon seeds is usually enough for the next season’s crop.

By noting the date, seed type, and actual plant you took the seeds from, you will have a reference in the event that one crop fails one year, or is particularly prone to any particular disease or condition. Having a variety of different seeds stored allows you to become ‘seed independent’, and never reliant on just one seed variety, should conditions change, or a particular batch or type of seed prove unviable or maladapted to the new conditions.

You can fold bits of paper to make your own paper pouches. While freezing is a great option for peas, corn, hard shelled seeds, it is not an option for herb and tomato seeds. Instead simply keep those types of seeds cool and dry.

NEVER vacuum pack seeds. They are living organisms. They require oxygen to remain viable. If you store your seeds in sealed containers, be sure to leave a few centimeters of airspace between the top of the seeds and the lid. This will be adequate. Paper pouches and envelopes are ideal as they allow the seeds to ‘breathe’.

To ensure the seeds you have don’t end up exceeding their ‘use by date’, rotate them into use, using the oldest seeds you have this year, and replenishing your supply with this years seed, to maintain several years of seed supplies in any one year. Most seeds have a shelf life of around 4 to 6 years.

The term 'heirloom seeds' came from a traditional practice of giving newlywed married couples a supply of seeds to carry them over until they could harvest their own, and start building up their own seed banks. Many of these are rare, and if you get your hands on some, be sure to plant them, and collect their seeds, to keep them alive as a viable alternative.

Most of the garden and crop seeds of even a hundred years ago have disappeared, perhaps never to be seen again. The cost in terms of lost DNA and species diversity is inestimable. What benefits we might have gained from them can never be known. In the future, after the GMO war on nature is lost, our survival may depend on some 'heirloom seed' you saved, and reproduced. Plants adapted to the current soil and climate conditions may prove maladapted to next year's soil and climate conditions. And once the cheap fossil fuels are exhausted, the GMO crops dependent upon them will become useless as food crops. At any moment a gene mutation in any plant or animal pest could lead to literal 'plagues' of insects, diseases, or pathogens wiping out entire monocultures of crops. Commercial agri-business has built itself into a precarious corner that it cannot escape from, it if continues along this path to self-destruction. Many people consider this to be a deliberate strategy on the part of the New World Order to reduce the world's human population down to under 500 million. The real possibility of seed banks, underground hydroponics, and stored foods for the elites and 'chosen people', and starvation for the rest of us, is something you should take seriously, if you want you and your family to survive, let alone thrive.

Composting

The floor of a mature forest is usually deep in mulch. Mulch that has been deposited over many years. This mulch retains the moisture in the soil required by soil micro-organisms. This mulch is loose and friable, retaining the ideal balance of oxygen and water to sustain a thriving soil ecosystem or 'food web'. It offers a habitat for fungi, the 'teeth' of the forest, along with all the other insects, bacteria, and micro-organisms that break down leaf litter and fallen branches into soil and nutrients.

Just below the surface of the more recent mulch you will find little balls of soil, with a friable structure like 'chocolate crumbs'.

These soil structures are produced by soil organisms. They are a sign that the soil is alive. Fertile. Active. That the 'food web' of the soil is diverse, and dense. Soil microbes, protozoa, bacteria, nematodes, will flourish. These organisms cycle nitrogen, sulfur, and phosphorous, often interacting with the roots of trees and other forest plants, exchanging sugars for nutrients.

Woody materials provide the carbon, while green leafy matter provides the nitrogen, required for this 'food cycle'.

Note that the 'browning' of green plant materials indicates that the nitrogen originally present in them has been lost to the atmosphere. So if your particular aim in composting a particular area is to increase nitrogen levels, replace the 'chopped and dropped' green matter ever couple of days, or as soon as it has turned brown.

Coffee grounds are about the best kitchen waste for compost. They will contribute moisture, nitrogen, calcium, phosphorous and potassium to the mix. Mix coffee grounds in with leaves (the fastest decomposing of garden wastes), to speed up the process even more. About five centimeters of leaf-coffee ground compost will suffice to feed and protect your vegetable garden optimally.

But keep coffee grounds out of vermicompost. They are much too acidic.

To ‘seed’ a fresh compost pile, mix in some ‘mature’ compost from a previous pile. Lay down a layer of compost, then sprinkle the ‘mature’ compost on top. Some refer to this process as ‘inoculating’ the compost. Repeat this process until you have a new pile, interspersed with layers of ‘mature’ compost. The microbes, fungi, bacteria, and other micro-organisms from the mature pile will colonize your new pile, speeding up the decomposition, turning your garden wastes into compost that much faster.

Remember that compost is a ‘living ecosystem’. You put ‘dead’ matter into this system to ‘feed’ it.

A typical ideal compost composition will be around 20% animal manure, 40% brown matter, and 40% green matter. If you are using only plant materials, replace the animal manure with more green matter, to balance out the nitrogen levels. The ideal carbon (brown matter) to nitrogen ration is around 30:1.

A sign that your compost is too nitrogen ‘heavy’, is overheating. If this occurs, add more carbon (woody or brown) material. This could be as simple as adding newspaper.

If your compost is too cold, add more green material or manure. You will want to ‘turn’ the compost, to mix in the new green material.

This will offer you a chance to ‘smell’ your compost. If it stinks like sewage, this indicates that there is not enough oxygen in your pile. It has become ‘anaerobic’. In which case you will need to aerate the pile by mixing it up, and adding some ‘loose’ materials to prevent the compost compacting.

A compost that is ‘wet’ rather than ‘moist’ will also ‘drown’ the compost micro-organisms. So ensure adequate drainage of the compost pile. And if necessary, spread the compost out on dry ground to let it dry out a little, and aerate.

If you are serious about composting, get a thermometer. Place the measuring device inside the compost, and fix the gauge to the outside, so you can keep a watch on the temperature.

Microbial life will begin dying off it the temperature exceeds 70 degrees Celsius. Usually this temperature is a sign that your pile is too damp or too nitrogen rich. The nitrogen reacts with, and ‘burns up’ the available oxygen, producing excess heat, and asphyxiating the soil microorganisms.

So any time it climbs above 65 degrees Celsius, it is time to turn and aerate the compost pile, and if this doesn’t do the trick, or if it smells like sewage, you will need to spread the compost out on the ground to let it dry off, cool down, and aerate. .

Of course you can deliberately use compost to generate 60 degree Celsius ‘hot water’ for home and greenhouse heating, showering, and cleaning. While we cover this topic thoroughly in other chapters, the basic principle is that you can ‘pump up the heat’ of an anaerobic, high nitrogen, high moisture, low oxygen, compost pile of any shape, and by running black plastic tubing around and through it, with cold water coming in through the pipe at the base, and being naturally warmed, to rise up out of the pipe as it exits the pile. Heat expands air and water, just as it does in your chimney. Expanding air or water produces air and water pressure differentials which naturally ‘suck’ up cold air and water.

You can then run the heated water through insulated pipes into your home or greenhouse. Or use it 'in situ' as an outdoor hot shower.

Just keep the pile wet, relatively compacted, and 'feed' it with green, nitrogen rich materials, or manures. As the bacteria break down the compost they generate body heat. They also generate natural 'gas', as a byproduct of their digestion. We discuss how this gas can be captured for home use in other chapters of this guide. However just keep in mind that this 'compost heater', because of its nature, will tend to smell. So keep this in mind when planning where to locate it.

If your aim is heat, then place the compost in a position that gets the maximum exposure to sun, while being sheltered from cold winds that can remove heat and moisture. Cover it in dark plastic, or some similar, dark colored material.

Worm compost

The simplest worm farm design is a foam box you add manure, kitchen scraps, and mulch to. You then add about 1000 worms bought online or at a gardening shop. You cover this with a hessian sack that you keep moist. As this foam box fills with the rich castings of the worms, and worm manure, take a second foam box and cut holes in the bottom of it. Add this second box on top of the original one, with the same mix of scraps, manure, and mulch, and the worms will naturally migrate up into it, leaving you to then 'harvest' the lower box of worm castings, worm manure, and compost.

'Vermicomposting' is a great way to not only speed up the usual composting process, but provide a range of valuable 'extras'.

The beauty of worms is that their wastes contain more nutrients than the 'food' they eat. In other words worms add value in absolute terms.

However we are not talking about earth worms. These live in deep soil, and feed on dead plants. They won't eat compost. But as these worms burrow through the soil, they aerate it, allowing it hold moisture, providing a habitat for various soil microorganisms, and making it easier for plant roots to penetrate deep into the soil.

Worm castings, which contain mucous, conditions the soil by helping the soil retain moisture, and therefore water soluble nutrients. They also neutralize soil contaminants. , and leave their 'castings' to decompose and add valuable organic matter to the soil. Worm 'poop' can also inoculate many plants against pathogens and diseases.

So we won't be using your garden variety 'earth worm'. Instead we will be using a breed known as 'red wrigglers'. These feed off the bacteria and fungi that feed off rotting organic matter. They even feed off the bacteria that grow on their own excrement. You can buy them online or from fishing bait shops.

Red wrigglers are considered among the fastest breeding and 'hungriest' of eaters. One handful over the course of a year will reproduce to fill your worm bin. The worms will lay worm pods as eggs. A small bucket can end up holding as many as 6000 worms.

Once you have 'populated' your worm bin in this way you can begin 'harvesting' worms from this worm bin for other worm bins. The worms will tend to 'hang out' in the few inches of the compost, so 'harvesting' them is quite easy.

When designing your worm bins, keep in mind that the bins will have to be kept moist, about as moist as a typical house plant, but never allowed to become excessively moist.

You can even keep them in the space under your kitchen sink, so regularly feeding them with kitchen wastes is convenient.

But excess moisture will lead to the compost becoming anaerobic, and 'fermenting'. This will not only kill off most of the beneficial micro-organisms and bacteria, but can kill the worms as well. Your vermicompost will also start stinking. This in fact is a good 'tell' (indicator) that your compost is too moist. Trust your nose.

If you find you need to dry and aerate the compost, first remove the first few inches where the worms will tend to 'hang out'.

Then drain the compost container. Remove the compost and spread it out to dry and aerate on some flat surface. Then check that the drainage point of your compost container is clear and functioning.

Add a tap to a bottom corner edge of the worm bin to collect the 'worm tea'. This natural liquid fertiliser can be very strong, so be sure to water it down before applying it. Tomatoes, for example, thrive on this

It is important to ensure worms have access to 'dirt' in the worm bins, and not garden wastes and other organic matter. The worms need access to dirt to 'chew' their food. Worms have a 'gullet' like birds. In the case of worms they keep tiny abrasive particles in this 'gullet'. They use these to grind up their food. In this case their food will include the organic matter you place in the bin.

Coffee grounds and filters, tea bags, and food remnants all make excellent worm bin fodder. Note that if you add dairy products, these will make your worm bin stink. In general it is important to keep the acid levels low, and anything high in protein is by definition 'acidic'. Protein is, after all, made of amino *acids*.

Fill up the worm bin with these materials first, then add dirt, and then finally the worms. The worms will eat their own weight in kitchen scraps every day. Just remember to keep the bin covered, moist, and warm.

The result is a high quality liquid fertiliser, 'worm tea', full of beneficial bacteria and microbes, and a nutrient-rich, bio-safe, vermicompost high in nutrients and, beneficial micro-organisms.

Be sure to 'collect' any old bathtubs you come across. They make ideal worm farms. They also make ideal movable ponds for growing edible aquatic plants such as water chestnuts (up to 20kg per tub), and lotuses. You can even cultivate ginger from ginger root cuttings.

Worm compost is among the most biologically active composts you will find, and thus an extremely valuable contribution to soil fertility.

Food forests

Before we get into this subject, I want to highlight some important points about forests.

Plants, especially forests, currently account for up to 85% of all oxygen production on earth, with plankton making up the other 15%. This is a relatively recent development. We originally had plankton, in the ocean, to thank for 'bio-engineering' our current atmosphere. In the beginning it was plankton that produced the oxygen that made animal life on the land possible.

In regions with the lowest rainfall, 'tree condensation drip' often represents up to 80% of the total moisture that reaches the soil.

Tree condensation drip occurs when the deep root systems of a tree bring moisture up out of the ground. This moisture is transported around the tree by various 'vessels' and processes.

Some of this water, via the process of 'transpiration', forms on the outside surface of the tree's leaves. This then 'drips' down to the ground. And so the forest 'irrigates' the soil it created over decades of mulching.

At the same time as 'watering' the soil, the tree keeps the water table down. In many cases this water table is saline. Salty. And if the trees are removed, it will rise up to the surface, poisoning the ground for any plant or animal that requires fresh water to survive.

Entire books have been written about the number of medicines and products humanity has derived from the diverse forestry ecosystems. On how forests are the most bio-diverse ecosystems on our planet. How they filter our air and water. About how we have destroyed most of the forests that used to cover most of our planet. All in a few centuries of conquest and migration.

We have replaced bio-diverse forests with monocultures of trees and plants. In fact the story of agriculture over the last few centuries has been focused on monogamy. Monoculture. An extension of the idea of 'specialisation'. Growing a large amount of one type of crop on one site. With the size of those sites expanding exponentially with the development of specialized farm machinery, and petro-chemical fertilisers, herbicides, and pesticides.

So we went from modelling our food production on naturally occurring 'food forests' to huge scale single output orchards and 'cash-crops. In many nations the World Bank and IMF actually forbid farmers to grow a diverse range of vegetables and fruits to meet their own dietary needs. The aim was a centralised food production and distribution system. This was to centralise power in a one world government. In the same way the new one World Bank and one world currency would. To centralise all power in the hands of a few crony capitalist central Bankster 'new world order' elites.

The 'agricultural revolution'. The 'green revolution'. All promising food for everyone. But like the promises of all groups who seek centralised power for themselves, misleading. For the stated intentions of the new world order are to bring world population down to less than 500 million. And food control is to be weaponized as part of this strategy. Whoever controls the food supply, essentially controls the world. Gold and money won't buy you anything, if it is not for sale. Only guns and ammo will provide you access to food. Or it would have, for the last few centuries. Today new high tech weapons, in the hands of the new world order militarized police, will decide who gets access to food. And it will only be those who 'go along to get along', with the new world order, and its plans.

But they may leave you alone, at least for now, if you manage to get 'off the grid', and don't make any problems for the new world order, which is in its last stages of a total 'Macht ergreifung'.

Along with a vegetable garden, you will want to invest in a food forest. It is a longer term investment, the equivalent of a retirement scheme for 55 year olds. Or an early retirement scheme for 30 year olds. It will begin producing long term yields in about 10 years. But once it is established, you can 'live off it' just like people used to live off their 'retirement nest eggs', before these were 'wiped out' and made valueless by the Bankster's new world order strategies.

If your property already has orchards, especially ones that were subjected to pruning, you are basically locked into a long term 'labor contract' with them. If you stop pruning them, they will stop producing fruit. As Fukuoka proved, there is no need to prune fruit trees. And it is better not to, in the longer run.

But you can set up a new food forest around existing fruit trees, even a labor intensive, established orchard. You can maintain your current fruit yields, while building up a new food forest around the current guests.

If you don't have any existing orchards, you can start from scratch. With a freshly engineered swale. Starting on a small scale suitable for any sized property.

Now onto the matter at hand. **Food forestry**.

A naturally occurring forest experiences a 'succession' of states, each of which is associated with different types of 'guilds', culminating in the 'climax' of the old-growth forests we encounter in the wild. These 'climax' forests are the most diverse and fertile ecosystems on the planet. These forests have built up a deep, rich, topsoil, and a deep layer of humus. This is what traps the moisture of dew and rainfall, and provides a rich and diverse ecosystem of micro-organisms, fungi, insects, and larger animals.

One of the aims of food-forestry is to replicate the 'succession' that naturally occurs after some disturbance such as a fire, in a controlled, planned, designed 'food forest concept'.

Rather than simply take our chances with nature, we plan what sort of trees and other plants we want to define the 'climax' state of our planned food forest.

We will also want to speed up the usual rate of succession, to benefit from the products offered by the 'climax' state, arguable the most fertile and 'productive' state, as quickly as possible, and then maintain them for as long as possible.

But that is just one possible objective. At different stages of 'succession' different 'guilds' dominate. Each of these 'guilds' offers potential benefits for us. They produce different products and services. So you might want to keep some parts of a food forest at a different stage of 'succession' than other parts. Or maintain several different food forests at different stages of 'succession'.

Maple syrup, from mature sweet maple trees, is a good example of a 'climax' forest state product. The mature trees can be 'tapped' each year for their delicious sap. But many other products can be harvested from the different 'guilds' that appear at each stage of this 'succession', from disturbance, to mature, peak, 'climax' state.

Below ground level we could have ginseng roots. Laying on the ground could be logs inoculated with various mushrooms. Forming an understory or trees we could have coppiced hazelnut and tulip poplars.

None of the 'lower level' crops would compete with the maples, the main objective we had when starting this food forest. The understory provides shorter-term yields while the maples are 'fast tracked' to climax state, by thinning out the pre-existing forest trees to allow sunlight and rain to reach them, while still preventing invasive weeds from competing with the maples.

The idea of 'fast tracking' and speeding up natural cycles and biological processes to reach the most 'productive' stage of a natural cycle, is key to the idea of food forestry.

The early maple trees would have been 'thinned' out as they matured, to ensure only the best specimens remained, and that these had maximum exposure to sunshine, as they broke through the existing tree canopy, and thus produce the maximum quantity of highest quality maple syrup when their sap is finally 'tapped'.

If you plan on harvesting other trees for timber, in the same forest, you will ideally have planted them where there is little chance of damaging the 'food' trees when you 'harvest' them for wood.

Alternatively, if you have planted food trees in an existing forest, consider the best positions for them Vis a Vis the mature trees that will either drop branches (widow makers), or which you will, at some time in the future, be removing, either to make way for your food trees, or to harvest for their timber.

The best specimens of the poplars would be coppiced, by cutting them off close to the ground, to ensure a lifetime supply of logs for mushroom farming.

For areas with more rainfall, Northern Pecan, Cherry, Mulberry, Butternut, and Persimmon are popular choices for 'food forest' trees.

In drier areas Oak, Pecan, Persimmon, and chestnut are popular.

For most of us, when we think of 'productive' trees, our thoughts usually run no further than to trees grown for their timber, fruit trees growing in orchards, or huge swathes of 'cash crop' bananas.

Food forestry is about integrating different crops into a deliberately planned and designed forestry system, so that at different stages of the natural 'succession' of trees and other plants in this forest, we produce as many useful crops and materials as we can, before reaching the 'peak' 'climax' state of the mature forest, after which we can relax, and enjoy the 'fruits' of the previous few years labors, for decades to come. At this point our forest will require a mere few days of specific, irregular maintenance, while most of the 'work' will consist of merely collecting and gathering fruits, nuts, berries, 'tapping' sap, or cutting down building and craft supplies. We may 'chop and drop' a little here and there, to let a little sunlight through the canopy so the next generation of trees can thrive. We might harvest some valuable timber. Maybe coppice and pollard a few trees here and there.

At the very start we might alley crop between newly planted saplings, until they grow and block out the sunlight from our alleys.

We might plant food forest saplings and ground cover around existing fruit trees, and continue harvesting from these until once more, our saplings mature and their canopy deprives the fruit trees of sunlight. We can then harvest these fruit trees for their wood, which can be quite valuable. Or simply allow them to follow their natural life cycle, as our food forest thrives around them.

We can grow various understory crops of root vegetables, herbs, ground covers, and shrubs, as long as none of these conflict with our longer term goals for the food forest.

Ultimately the food forest is an investment in our own food security, and future. Once established, and maintained at its 'peak' 'climax' state, we can virtually 'retire' and live off the proceeds, the returns, the dividends, of our earlier investments. A true investment portfolio that is real. As compared to the 'paper' investments most people have, which will most likely prove to be worthless when the time comes to 'redeem' them.

Once you've established your 'food forest', you can more or less walk away, and get on with other things. Come back in a decade to do a little 'maintenance', and that's it. You can rest assured that your investment is secure.

This system you have engineered will continue building up humus and topsoil, promoting a diverse flora and fauna above ground, and underground, in the form of micro-organisms and insects. You will be building a deep layer of rich fertile garden soil for future generations, long after you are gone, and perhaps the forest has been 're-purposed' as a kitchen garden.

Basically food forestry is about taking a naturally occurring system and adapting it to our human needs, to produce a system that would probably never have occurred spontaneously. As such it is the product of our minds. A state that we have orchestrated, based on our keen observations of nature. A propergent of the interaction between our minds, and the natural world. An artificial condition that mimics naturally occurring conditions so closely that it becomes part of them. Stable. Resilient. Self *re*-generative. And even generative of emergent properties that were never part of our deliberate plan.

The food forest is a real example of human intelligence observing patterns, extrapolating what could be from what is, and then adapting what is to what imagines could be.

Food forestry, like most of the practices described in this guide, are the total opposite of commercial agri-business practices, in that they ensure that, over time the system becomes more and more independent of any external inputs. It becomes self-regulating. Self regenerating. Self-fertilizing.

Whereas in 'conventional' agriculture, each year's harvest represents a degradation of the soil, and necessitates that next year's harvest will only succeed if we apply even more inputs than last season, our approach continually builds soil fertility, so that with each successive harvest, our systems require ever fewer external inputs.

Every season the commercial methods require the application of more and more labor, in the form of mechanical and chemical processes, and fossil fuels. Every year the capital is depleted more and more. Degraded. Until all that is left is a wasteland that is little more than a non-organic growing medium for chemically fed, bland, literally 'plastic' food. Little more than a large scale hydroponics farm, which uses the depleted 'soil' as a mere growing medium, rather than a source of any nutrients.

While at the same time our methods, season on season, build the soil, and reduce the need for 'work' on our part. Nature does the work willingly. Automatically. Not as 'work', but as a natural course of living. Like the 'work' of sex, or learning a musical instrument, or writing a novel, or loving your children. This is the only 'work' required of the caretakers of the Garden of Eden, once they re-build that garden. Surely this must be the most rewarding 'work' possible. Hardly 'work' at all. More a vocation. A hobby. A rewarding lifestyle.

All the 'externalities' of the systems we are proposing here will be positive. No 'pollution'. No 'waste'. No conspicuous consumption of worthless products. No exploitation of any sentient being.

Systems built around, and consistent with, biological systems that are resilient and resourceful, already having been 'selected' by millions of years of evolutionary 'hit and miss', 'trial and error'.

Conventional 'farming' treats nature as the enemy. All our methods are reflexive of a mentality of warfare. Chemical warfare. Poisons. Huge mechanical devices for tearing up the landscape. The final step in our war against 'want'. The logical outcome of being kicked out of the Garden of Eden, and being forced to 'work' to survive. We became slaves to our needs and wants. Forced to endure hard labor.

There was, and will be, no such slave labor in our Gardens of Eden. There will be rewarding activities. We will once more become gardeners. Caretakers. Rather than rapers, pillagers, destroyers.

Finally, when deciding on what to plant in your food forest, look for multi-functionality, and multiple yields, over different time frames. Seek out plants that offer solutions to your immediate needs, while offering longer term benefits. For example you may need to build up soil nitrogen levels to kick-start a new garden or food forest. You may need a windbreak. You may need fuel for heating and cooking. If a particular plant, shrub, tree, or ground cover meets these immediate needs, and *also* offers future yields of fruit, building materials, sap, nuts, and mushroom logs, then give this plant preference, in meeting your immediate needs, over another that also offers a solution to your most pressing needs, but offers fewer, if any*, future* benefits.

Staking and labelling later succession plants

We engineer the food forest to provide us with different products at different stages of 'succession'.

The trees which are to form the ultimate 'climax' stage canopy for our food forest often grow much slower than the companion crops and plants we plant alongside them, as a protective canopy, for weed control, and pest control, and as shorter term 'crops' and sources of value.

For this reason we stake and label the tree saplings so that they are easy to distinguish from the 'chop and drop' plants.

You can use colored plastic ribbons, and keep a record of what the colors mean on your property map 'legend', or in notebooks. Or simply write down the names of each species on plastic ties made from used plastic containers. Just like in your kitchen garden.

As the faster growing trees mature, you may consider pollarding them at shoulder height. If existing mature trees become a problem for the growing saplings, you might 'coppice' them near the ground. We discuss coppicing and pollarding elsewhere in this guide. Coppiced trees provide an ongoing harvest that will continue long after your current saplings have 'climaxed'. You may end up thinning out your 'climax' canopy by coppicing many of the trees that make it up.

The plants and trees you planted alongside your target tree sapling will provide 'chop and drop' mulch for them, providing all the benefits of mulching that make forests so productive, and mature forest soil so fertile. So full of life. Of microorganisms, worms, insects, minerals, and moisture.

Other plants like coffee bushes and trees should be labelled as well. You will probably over-plant those trees and bushes you are especially keen on, to ensure that you have them in your final mix, even if some fail to survive. So at some point if more have survived than you expected, you will be thinning out plants, leaving only the best specimens, to ensure each get adequate sunlight and nutrients to thrive, and reach 'climax' as soon as possible. Labelling trees and bushes lets you quickly decide which plants you have too many of, and prevents you accidentally removing the wrong plants when thinning.

You will probably chose to plant some high quality timber trees, as a long term investment. It would break your heart to cut down one of these trees, mistaking it for a relatively low yield 'chop and drop' tree. So label everything of especial value to you, and your long term strategy. You can add every tree and bush to your property map to retain a holistic overview of what is going on, and what to expect over the short, medium, and long term.

Label any trees you have earmarked for construction of dwellings, and keep up to date on their growth, to plan construction and repairs of dwellings on your property.

The role of 'weeds', and nitrogen fixing plants in 'kick-starting' a 'food forest'

You'll probably hear someone talking about 'designer weeds', and get the wrong idea. These weeds are not for human consumption. Instead they occupy an important place in any developing plant ecosystem, as a productive and valuable part of that system. With a little planning and care, you can harness the power of such weeds, as just one more 'multi-functional element' of your entire system. As one more element that contributes positively to the overall productivity and fertility of your land, and your property.

Many of the plants you plant alongside, and between, tree saplings, will be 'chopped and dropped' to provide 'green manure' and compost for the developing saplings.

Be sure to plant stakes with colored markers next to your saplings, so you don't accidentally 'chop and drop' a sapling. The 'chop and drop' plants will grow much faster than the saplings, hiding them from view.

You will want to introduce other plants to attract lizards, wild birds, fowl, ducks, and other 'predators' of pesky insects like grasshoppers, snails, and slugs that might predate on your saplings and other crops.

These welcome guests (The enemy of my enemy is my friend), will also add their own natural 'fertiliser' in the form of droppings, and introduce some beneficial 'disturbances' into the system.

After a disturbance which clears the land of most plants, such as a fire, landslide, drought, flooding, or volcanic eruption, plants recolonize the ground in a 'succession' of various plant types.

Fire tends to deplete potassium from the soil. The weeds that sprout after a fire tend to pull up potassium from deep in the soil, and then return this to the topsoil when they die.

This is just one example of how 'weeds' repair soil, making it possible for other plants to colonise damaged, over-compacted, over-loose, or otherwise inhospitable, nutritionally and moisture deficient, soils.

Weeds do this by de-compacting over-compacted soils with their deep tap roots. They do this by holding together soils that are too loose, with their fine root systems. They draw up nutrients and moisture from deep in the soil, with their tap roots. When the plant dies, it returns these minerals to the soil. The plant matter also offers habitats and 'food' for micro-organisms which build up soil fertility. The dead plants help trap moisture from dew and rain. So that over time, a patch of 'weeds' can actually rehabilitate the soil, making it suitable for other plants to colonise.

Fire damage land will often be high in nitrogen. However land damaged and exhausted by *other* natural processes, or ruined by human agricultural warfare, rape and pillage, otherwise known as 'ploughing', 'tilling', 'chemically fertilizing', and 'chemical pest controls (pesticides, herbicides, fungicides), will usually be depleted in the element after water, which is most important to most organic (DNA based) life , nitrogen.

Only plants that can survive on nitrogen depleted soils can survive on such 'waste' land.

We deliberately select the fastest growing, fastest 'soil repairing' 'pioneer' plants to 'get the ball rolling'. Often 'weeds' are the only plants that will grow. We will deliberately employ these as 'fast carbon pathways' to building soil fertility and structure. To 'kick-start' the development of soil microorganisms. To increase soil quality to the point that other plants can survive. They are capable of fixing nitrogen, and surviving in soils that no other plant would have a chance in. Our aim is to orchestrate and speed up the initial colonization, to move onto the more 'productive' stages of the cycle as quickly as possible. And to tailor the final 'climax' stage to our human wants and needs.

When the soil has been sufficiently 'prepared' by 'weeds', we can plant legume ground covers. These plants can thrive in nitrogen depleted soils, because of their special symbiotic relationship with certain types of bacteria.

This ground cover is fast growing, with a lifecycle of around 6 months, before returning the nutrients they have drawn up from the soil, along with the nitrogen incorporated into their green leaves, to the soil. This boosts the levels of nitrogen levels in the soil, making it possible for other plants dependent on such bio-available nitrogen to colonise the ground.

We can mimic this initial stage of succession by sowing legumous nitrogen fixing plants from seed. And planting beans and peas.

There are also a variety of nitrogen fixing (legume) bushes, with 4 to 5 year life cycles, but which tend to re-seed themselves. These can ‘take up the slack’ in relation to nitrogen, once the initial ground covers have completed their life cycles.

For the longer term there are legumous (nitrogen fixing) trees with lifecycles of between 10 and 15 years.

We can grow the last two from seed, to seedling stage, in our greenhouses and hotboxes, then plant the saplings out in the area we wish to ‘rejuvenate’. These grow slower, but live longer. So they won’t contribute immediately, but will take up the slack as the bushes begin dying off.

So we end up with several layers of nitrogen fixing plants, growing at different rates, starting and finishing their ‘nitrogen accumulation’ work at different times, in succession, and finally completing their tasks as the last of our nitrogen fixing workers, the ‘full term’ forest canopy nitrogen fixing trees have become established.

Each ‘layer’ will have sent its roots deeper into the ground, and will have ‘dropped’ a deepening layer of humus which has become inhabited with all the soil microorganisms necessary for rich, fertile, topsoil.

These ever deepening roots will have ‘fixed’ nitrogen deep in the ground, around their roots, which will remain, to rot in place, after the plants themselves complete their life cycles. The leaves they have dropped over their lifetime will have fertilised the soil with nitrogen and other nutrients.

At the final ‘climax’ stage we will have a rich, fertile layer of topsoil, sheltered under a canopy of mature nitrogen fixing trees.

The living forest grows on the dead forest. Each stage of the ‘succession’ ultimately becomes mulch for the upcoming generation. Protecting this new generation from competition with weeds, conserving and retaining moisture that falls as dew and rainfall, building up a complex ecosystem of microorganisms, insects, worms, and beneficial / synergistic fungi. And providing all the nutrients they require to thrive.

Just like in nature, we will ‘*over* stack’ the forest. Emulating the evolutionary process of ‘binge and purge’. Whereas in nature the strongest, most adapted will survive, we will ‘thin out’ the plants and trees with particular human objectives in mind. We won’t leave it to nature to decide which plants get the sunlight, territory, nutrients, and moisture. We will ‘orchestrate’ the state of affairs most adapted to our own needs and wants that the conditions will allow.

We place particular value on particular types of plants. They represent different types of value to us. As sources of nutrition, culinary satisfaction, medicines, craft materials, clothing textiles, and building materials.

So we usually will find ourselves entering our ‘deliberately over-stacked’ food forest and removing some plants. Coppicing and pollarding others.

Chopping and dropping some. Clearing away room for some, to give them 'preferential treatment' Vis a Vis sunlight. To leave space for an understory of medium sized fruit trees, and to give over-story fruit trees the ideal conditions to 'fast-track' their way to 'climax' state, to take up their place in the canopy.

Most of the biomass we plant at the early stages of 'succession' were there to support the 10% of 'climax' plants which were our real objective all along.

Most of the fast growing plants we planted alongside our slower growing 'objective' saplings will be 'chopped and dropped' to speed up the growth of these saplings, and ensure they are exposed to adequate sunlight.

The timing of such 'chop and drop' procedures is crucial. When evaporation is greater than rainfall, these plants are more valuable to our 'future climax state' saplings as shade than as mulch. But as soon as rainfall exceeds evaporation, they can be 'chopped and dropped' as mulch, to speed up the maturation of our 'climax' saplings.

Once your 'nurse' trees reach shoulder height, consider pollarding them, for convenience of 'chopping and dropping', and retain 'shade' for your 'target' saplings while they need it, but then giving them total exposure to the sunshine once they are mature enough to benefit from it, rather than be threatened by it.

These Pollarded trees will continue to provide an 'umbrella' for the plants that need them, also shading and protecting the forest floor from excess sunlight, drying out, and heavy rains.

Trees that are coppiced and pollarded, or totally killed, will drop off the equivalent mass of roots as you reduce their above ground mass by. The nitrogen fixing nodules of the trees and other plants are 'dropped off' by the plant, and remain in the soil. In this way the nitrogen is 'fixed' in the soil. This is one way to 'orchestrate' or 'manipulate' the natural nitrogen cycle to speed up 'succession' and reach the most 'productive' 'climax' state of your food forest faster.

In this way you can turn a clay soil into a clay loam, and a sandy soil into a sandy loam. You will be conditioning whatever type of soil you started with, into a super fertile, biologically active, biologically diverse and thus resilient, living entity.

As the food forest progresses through its various stages of succession, the proportion of support plants to 'endgame' plants will change. Our objective 'climax' plants will begin making up a larger proportion of the total biomass, until, oh happy day, most of the biomass is 'productive' climax state food forest, and 'support' plants make up around 10% of the total food forest biomass.

At this point we can more or less 'retire', and live off the literally 'fruits' of our early labors. At this point the food forest does almost all the work. We are left merely to reap a very long term harvest of the seeds we have sown.

We will have nuts, fruits, berries, mushrooms, spices, herbs and so on, for nutrition, and 'fun food'. We will have craft materials for weaving, textiles, and furniture. We will have construction materials for building. Fuel for our heating and cooking. And even 'cash crops' to trade and barter with, for luxuries that are too hard or impossible for us to produce ourselves. We will have food security. Fuel security. Heating security. And 'retirement security' that actually means something.

Espalier trees

'Espalier' trees are cultured and conditioned to grow along wires, with as little 'depth' as possible, the aim being a nearly two dimensional (height and width) tree as possible.

This ensures each future fruit bud the maximum of exposure to sunlight.

That said, a prime candidate for 'splaying are Morello cherry trees, which will grow in the more shaded, darker, colder spots where nothing else will grow. Which means they grow well in the Northern Hemisphere's gloomier climes, as well as along the cold north wall of a Southern Hemisphere home or garden. They can be planted any time of the year, and 'trained' to grow parallel to any framework. They will thrive on the high-potash ash from your wood burning stove, especially if it is soaked in urine.

Such a tree can provide a privacy screen, or to screen off unpleasant views (such as of ugly fences), and provide a wind-break.

In colder climes you can use an espalier to insulate the wall of a home or shed. The wall and the plant will benefit symbiotically. The wall will act as a heat sink, and the plant will conserve much of that heat, by insulating the wall from exposure to cold winds, and heat transfer to the ambient air. In turn this heat sink will provide the plant with a warmer, more humid, micro-climate that will protect it from frosts, speed up blossoming and fruiting, or allow you to grow fruits otherwise 'alien' to your (normally too cold) locale.

Viewed from the side, the tree will be quite thin. However the trunk and main stems will grow quite thick.

Tie wire to stakes, or to the wall, for the horizontal branches to grow along. Try to use rubber-coated wire, as this will protect the bark from being split or striped. Consider that bark is the plants natural protection from predators and pathogens. Avoid damaging this bark as much as possible, to ensure healthy, vital trees.

Observe where the plant naturally wants to grow. Choose the branches already growing out at pretty much the position you want to 'train' them, and remove the branches in between them, leaving large gaps as you go up and down the tree trunk.

The young branches of Trees with flexible young wood, like apples and pears, can easily be trained by bending and tying. And you can get plants like Morello cherries to bend if you first cut a nick on the side you want to bend the young branch towards.

However other young plants will simply snap if you try to 'bend' them, in which case you will only be able to select from the actual branches that grow at the heights of your wires. In these cases, be patient. You may need to wait several seasons before branches appear where you want them.

Train these branches to grow along a wire, using adjustable, rubber coated, metal ties that won't rot, and can be loosened as the branches grow thicker. Be careful not to tie them too tightly. What you are aiming for is to merely support the weight of the branch, keeping it horizontal, holding it in the position you want it, while the branch stiffens enough to support its own weight. Then as the branch extends, add more such 'supports' to continue the horizontal line of growth.

Take care to loosen the ties as the branches grow thicker, to avoid the ties strangling the branches.

If you use a wire mesh, you have the advantage of being able to take advantage of any lateral growth at any height. The mesh gives you many more options than if you are limited to 'training' branches only at the few points where you have laid out your wires. But never 'weave' a branch through the mesh. If you do, as the plant grows and thickens, the wire will cut into it. Always used rubber coated metal ties that can be loosened or replaced as the branch thickens.

As the branches grow out, trim the vertical growths off the lateral branches, leaving only short, stumpy, 'spurs' for fruit to grow from.

Hot boxes (mobile mini-greenhouses)

A 'hot box' will let you germinate seeds, and grow seedlings in their own warm micro-climate. In this way you don't have to worry about unseasonal frosts destroying them. You can extend your growing seasons. Or grow plants that would otherwise never survive your local climatic conditions.

The box can be made of any relatively stable material that will hold potting mix or soil. It needs to be relatively 'air-tight', to trap heat. It will need a cover made of a clear material that will let in the heat and light of the sun, while trapping the heat in the box. This cover has to open and close, for planting and harvesting, and tending, and to ventilate the box should it get too hot.

Old windows with their hinges attached are often re-purposed for this task. But any relatively insulative, stable, clear plastic, Perspex, or glass will do the job.

Place this box where it will 'harvest' the available sunshine, be relatively sheltered from cold winds, and ideally benefit from thermal masse or compost pile warmth.

Basically a hot box serves as a relatively portable mini-greenhouse.

Check during the day that it is not overheating. If it is, open the top to allow some heat to escape. Cover the box with a thick, warm insulator like an old blanket, over the cold night.

The simplest, lowest tech version of a mobile greenhouse is to place a clear glass jar, or an old glass, over individual groups of seedlings. You can cut the end off a clear plastic bottle and place this over the seedlings. Then place something on top to hold it in position against wind and rain. The air inside will heat up, and retain heat, just like a greenhouse. Place the seedlings near compost, thermal masses, or where they are likely to catch any sunshine you get, to keep them warm and safe from frosts.

Chickens as co-workers and gardening colleagues

Even vegans might consider 'keeping' chickens as co-workers. As guests. As valued contributors.

Chickens are omnivorous, eating both plants and animals, but preferring insects, like grubs and bugs.

They will prey on insects that would otherwise prey on your plants, either in their adult or their larvae form.

They will eat up plant seeds of ‘weeds’ that would otherwise compete with your plants for moisture, nutrients, garden real estate, and sunlight.

They will even eat the entire ‘weed’, if they are not offered anything more interesting. Many people build ‘Chicken tractors’. Basically moveable cages made of chicken wire’. Place the ‘tractor’ on a patch of weeds, and leave the chickens to scratch up the soil, .peck out weed seeds and insect pests, while shredding up the rest of the plant into a valuable mulch that is free of seeds. They will often even devour the entire weed, converting it into valuable manure fertiliser. The phosphates in the chicken poop, along with the nitrogen from the weeds green leaves, represent a nutritionally balanced fertiliser.

Once the chickens have cleared, aerated, composted, and fertilised the current territory their ‘cage’ covers, move them on to a fresh patch of weeds. But be fair. Don’t keep them cooped up for long. Rotate them through their ‘tractor duties’ like any fair and compassionate manager will do with their co-workers and colleagues.

Chickens effectively and efficiently break weed and pest cycles. They prevent weed seeds from germinating. They prevent fruit fly larvae hatching. Fruit fly lay eggs in the fallen fruit. The eggs hatch into larvae, which pupate in the fruit, before crawling into the ground to develop into a fruit fly. So once your fruit trees are established, and mature enough to fruit, consider placing Chickens in with them. You can fence off an entire area, or use large, moveable cages. Use the same cages for your ‘chicken tractors’.

All you need to do is ensure that the chickens are at the right place, at the right time. Moveable cages and fences make this relatively easy to achieve.

When chickens eat up rotting fallen fruit, they remove what would otherwise be perfect egg laying conditions for pests that attack fruit trees. Just another example of ‘breaking the cycle’. They then convert what would have been a liability into an asset, chicken manure.

However chickens may even take a fancy to your freshly sprouted greens. So for this reason, you may need to keep them out of your garden at the start of spring.

You can ‘chop and drop’ weeds in their enclosure. They will devour the seeds, and fertilize the rest of the plant, basically making it harmless (seed-free), and ready to be applied to your garden as compost high in both phosphates (chicken manure) and nitrogen (green plant material).

Once your fruit trees are established, allow chickens to range freely among them to eat pests, weeds, and convert these to free fertiliser.

Chickens will eat the fallen ‘fruits’ of a host of trees you might never have considered potential ‘fodder’ for any animal. They will convert oak, chestnut, hickory, pecan walnut, silver beech ‘fruit’, and even pine ‘nuts’, into valuable fertiliser. They will eat any sort of fruit or seed that falls from any bush or tree.

Plant mulberry bushes, comfrey, and Siberian pea shrubs wherever your chickens ‘hand out’. Think of these as ‘drive through diners’ for your chickens. But as they prefer insects, to reward them for their contribution to your garden, and to attract wild birds and fowl, strategically place piles of old wood on the ground where you want the chickens, fowl, and other birds to 'migrate' to. These will soon become habitats for all sorts of insects which the chickens will 'flock' to. Like the golden arches on a highway exit ramp, luring hungry long distance travelers, and locals, alike.

The wood piles will rot, and you will end up with wood mulch pre-fertilised with chicken manure.

Observe where any 'run-off' from the chickens, wood piles, compost piles (especially vermicompost), and your garden in general, tends to flow to.

Follow this flow 'down-system' (usually simply down-hill), and find the right spot to build a mushroom 'factory' out of woodchips inoculated with Elm and Oyster mushrooms. The pile will catch the nutrient rich runoff from the chickens, worm farms, or plant beds, into this woodchip pile. You will thus be adding another level to your garden ecosystem. Taking the output of one element, to use as the input for a new element. Turning wastes from one sector, into productive, valuable assets for another.

These nutrient dense woodchip pile will soon become populated by tasty, nutritious, high protein Elm and Oyster mushrooms.

These mushrooms will form a densely woven mycelial 'mat' that will filter out the wastes that flow down to the woodchip pile, converting them into nutrients and proteins. That in itself is a real win.

However the byproduct of this process is that the waste is naturally filtered free of contaminants, even heavy metals such as those attached to fluoride compounds, lead, mercury, and also pathogens and bacteria.

The sugary Mycelium will attract insects that come to feed on the sweet yummy goodness, which will in turn attract fowl, birds, and chickens to the mushroom factory. These will convert the insects into manure, adding valuable inputs to the mushroom factory 'in situ'.

The pecking of the chickens, fowl, and other birds represents an example of a 'positive disturbance'.

They will break up the mycelial mat (Mycelial fragmentation), into pieces. Each fragment, once divided, will continue to grow and 'seed' new areas of the woodchip pile, and surrounds. This is because mycelium reproduce via fragmentation / division. The chickens act as 'midwives' in this process.

The key to managing this process is to ensure that the chickens do not fragment the mycelial mat excessively. As in all other things, moderation is the key. So rotate chickens in and out of the woodchip pile to keep their disturbance to an optimal level.

The mycelium will then reproduce, thrive, and convert relatively low value woodchips into relatively high value, nutritionally balanced, mulch and topsoil.

As an additional service, consider planting a mulberry bush, or similar fruit bearing bush, near the areas you want the chickens to do their magic. This will provide them with shade, some protection from birds of prey and other predators, fallen berries and fruits to eat, and also attract the insects, larvae, eggs, grubs, and worms that chickens love to eat most of all.

If you intend 'keeping' chickens, harvest sorghum heads for them. They provide a good grain to feed chickens over the winter months.

Perennials, for a 'perennial' return on your investment

Perennial crops are those that 'repeat' or 'return' season on season. So once you plant them, and get them established, you can enjoy many years of harvests, as they self-seed or sprout from tubers or runners.

Some, like spinach, arugula, kale, radishes, carrots, love the cold, and have no problem surviving over winter, to come back in spring.

Garlic and Chinese leeks are great perennial crops that will return year on year, without you needing to do anything at all. As such they represent a great investment.

Some perennials are evergreens, like the pine trees brought into the home around the Northern Hemisphere's winter solstice, as a symbol of hope and life.

Others perennials are the original model for the 'resurrected godman' archetype, dying, and being reborn in spring, like roses and strawberries.

Some plants fail to achieve this miraculous feat in some extremely cold climates where the winter finishes them off for good. Whereas in warmer climates the same plants will be reborn in spring.

Most vegetables, including the most popular like tomato, peppers, basil, and lettuce, are annuals. They die during autumn or winter

Most bulbs, including onions, are bi-annual perennials, living for two years, but only flowering and seeding in their second, and last, year. We deal with how to collect seeds from such plants in a different chapter of this guide.

Coppicing and Pollarding

Britain has a thousand year old tradition of making charcoal out of coppiced trees. Coppiced trees provided most of the charcoal that fueled the British metallurgy industry of the early industrial revolution.

Trees selected for coppicing are cut a foot or so off the ground. The stumps are left to 'coppice' in the shade of the remaining trees. During the 7 to 10 years it takes for the 'coppice' to be ready for harvest, the regrowth often offers a supply medicinal barks, nuts, edible flowers, bee forage, and sap..

During this time the 'coppice' growths will grow into straight poles between 8 and 15 cm in diameter. Perfect for charcoal production in charcoal kilns, and for furniture, crafts, and construction.

In the meantime the trees left standing would be providing nuts, fruits, and forage for animals.

Some tree species such as black locust even fix nitrogen in the soil every time they are 'coppiced'. What happens is that the tree gives up most of its roots, to balance out the 'above ground' mass of the tree with its 'below ground' mass. These roots contain a large supply of nitrogen, which remains in the soil.

You may have seen old tree trunks with several thin poles of growth sprouting from it. It was probably the result of a deliberate act of 'coppicing'. The tree may be centuries old. In the oldest living specimens of any particular tree species will be those that have been coppiced.

Coppicing is an old English term referring to the traditional method of cutting a tree close to its base in the winter, so that new growth will begin again from the stump or roots in the next spring.

Trees coppiced in this way can live for centuries. The ‘poles’ that regenerate from the tree stump are much easier to harvest, store, and use as firewood. They will also burn more efficiently than larger pieces of wood.

Years later these regrowth’s will be harvested in the same way.

Birch is traditionally coppiced for bundles of faggots on a 3 to 4 year cycle.

Oak is traditionally coppiced over 50 year cycles for poles or firewood.

You can also coppice apple, alder, ash, sycamore, chestnut, willow, and hazel. All of these trees will grow back if you cut them near their base.

Coppiced hazelnut and willow (very damp resistant) offer an exception source of fuel-wood (thin sticks for optimal hot burning), and straight, pliable craft and building materials. These are ideal for wattle-n-daub construction for walls. You get extremely straight, high quality wood for window frames and high quality furniture.

However you cannot coppice evergreens or pines.

Coppiced and Pollarded trees (the same principle, but applied at around shoulder height) tend to outlive their non-coppiced contemporaries by many generations. In fact some of the oldest living trees in existence are coppiced and pollarded trees. They can survive many human generations, and thus ensure a renewable supply of conveniently shaped and easily harvestable wood for future generations.

You can coppice a middle-story of high quality timber trees beneath an over story of nut trees, to provide high quality furniture and building timber later in the forest ‘succession’, and a regular harvest of nuts.

The magic of mushrooms (Myco-forestry)

There are compelling arguments that the ‘Manna’ that Moses and his crew survived on for 40 years in the desert, before committing the worst and most precisely documented acts of genocide and sexual slavery in world history, was actually a type of mushroom.

There are also compelling arguments that the entire cult of Christianity, with the ‘virgin’ birth from invisible spore, the appearance after ‘thunder’, and the magical-mystical-miraculous experiences associated with the ingestion of the toxins, is based around the ‘magic mushroom’ Amanita Muscaria.

There are even compelling arguments that Santa Clause’s costume was based on the red with white dots of the Amanita Muscaria.

So there is a whole ‘culture’ and ‘mystery school’ surrounding our not so humble mushrooms.

Of course don’t eat any mushroom or fungi that you are not confident is safe to eat. Consult with experts online, and learn your ‘trade’ before taking any risks.

And before you anthropocentrically go on assuming that humans are the only species to ‘farm’ fungi, consider the compost building termite. It builds mounds, then collects plant material, grasses, and so on, and places these inside the mounds to form a compost. It then seeds these compost piles with fungal spores. It then eats the fungi that grow in and on the compost. The human farmers who know this secret often plant crops on and around the mounds to benefit from the ants 'fungi farming'.

While our focus is on edible and medicinal fungi, remember that even non-edible fungi have an extremely valuable role to play in any holistic food forest plan.

The researcher and author **Paul Stamets** coined the term ***Myco*-forestry**.

Myco-forestry incorporates fungi cultivation into the forest management plan.

Fungi are the 'teeth' of the forest. They speed up the decomposition process, returning carbon and other elements back to the soil, from dead plant matter. In this way they can speed up all phases of the 'forest cycle', so all the valuable elements locked up in the 'dead' plant, animal, and mineral materials, can be returned to 'productive' use, sequestering carbon, and increasing the various forestry yields of valuable foods, medicines, and fibers.

Again, the parallels with religion are stunning. Through fungi, the forest is 'born again'. The dead matter is raised to life once more, in a literal (littoral) 'transubstantiation'.

This is a great way to rejuvenate and build up soil fertility in forests, especially after 'commercial' forestry, logging, or land clearing, and chemical waste have destroyed soil fertility, and exposed the remaining trees, weakened, and vulnerable, to damaging parasites and pathogens.

By building a rich topsoil and diverse, healthy, soil eco-system, you not only reduce erosion, build topsoil, increase drought resilience, increase general biological diversity within the forest eco-system, but also improve the quality of surface water, and what is key in many areas today, actually lower the water table, by retaining more moisture in the topsoil.

There appears to be some consensus that 'die back' in places like Australia is due to rising water tables bringing salt up to the surface, where it kills trees and other plant life. With no topsoil to absorb it, any moisture falling on the land travels directly down to the impermeable layer, and begins creating a new water table, or raising any existing ones.

Mushrooms, which include many of the edible varieties of fungi, are just one type of fungi. They produce enzymes which allow them to 'eat' everything from dead plant matter, to dead animals, to bedrock. In the process they convert their 'food' into 'food' and 'habitat' for the rest of the ecosystem they inhabit.

(Sadly you can expect to see 'weaponised' mushroom enzymes coming to a theatre of war near you in the near future. We learned how to 'fix' atmospheric nitrogen to make fertiliser, and used it to make explosives. We'll probably do the same with this 'bio-tech').

The two main types of fungi most talked about are the saprobes and mycorrhizae.

Saprobes (decomposers), should be worshipped as gods. They have a 'diet' that includes plant matter that no other living thing on earth can 'digest'. That plant matter would 'choke' up the ecosystem, if we lost this 'ally'. They return all manner of organic and non-organic matter back to the soil as bio-available nutrients.

Mycorrhizal fungi digest rock and organic particles with enzymes unique to them. They live in symbiosis with their 'plant partners', with whom they 'trade' the minerals they 'excrete' in return for photosynthetic plant sugars.

The plants benefit in other ways from this 'deal'. It is a sort of 'plant health insurance scheme'. The plants grow faster, healthier, more disease resistant, and are more resilient to other forms of 'stress'. As such these fungi are considered a fundamental pre-requisite for a healthy forest.

Stamets sees mushrooms and other fungi as forming a sort of 'immune system response' of the forest. They remove toxins and pathogens out of the system, converting them into beneficial substances. They remove 'dead' elements of the system, and nourish the 'living' elements with them, thus turning toxins and pathogens from liabilities into assets.

Ectomycorrhizae quicken tree growth and enhance tree and soil health.

Endomycorrhizal mixes help establish healthy herbaceous plantings.

Specific fungi species can even be 'employed' to remove harmful petrochemicals, heavy metals, and other toxins from contaminated soils.

Some 'parasitic' species of fungi, ones that do relatively little damage, can be used to defend trees against more dangerous parasites and pathogens. For example, Chaga (Inonotus obliquus) can protect Birch trees from more harmful fungi.

Different edible species grow on different tree species. Many of these are not only delicious and nutritious, but have clinically proven medicinal value as treatments and preventatives.

Chinese Reishi (Ganoderma lucidum), is known as '**The mushroom of immortality**' in Chinese traditional medicine. Biochemical and pharmacological studies, including many clinical trials, have verified a long list of beneficial properties for these fungi. These include potent anti-tumor (sarcoma and hepatoma) action, adaptogenic and immune stimulating qualities, spleen cell regeneration, and anti-hypertensive and anti-allergenic properties. This particular species of Reishi thrives on Oak and other hardwoods.

Appalachian Reishi (Ganoderma tsugae), a close sibling of the Chinese Reishi, prefers large hemlock trunks with full soil contact.

The grayish '**Maitake**' (Japanese '**Dancing mushroom'** (Grifola frondosa) can be found at the base of dead and dying oaks, especially *white* oak, from late September onwards. The record Shitake to date was over 45kg.

You too might find yourself 'dancing with joy' after stumbling across this delicacy. Not just for its delicious flavor, but for its heavily researched medicinal properties.

Studies indicate that Maitake extracts can be effective in combating hepatitis, diabetes, and a variety of malignant tumors. It has been shown to help reduce blood pressure, hyper-tension and general immune system stabilization, especially in the context of chronic fatigue syndrome.

You take the ‘petals’ and peel them apart along the lateral fibers, then steam them in oil and apple cider vinegar, adding salt to taste. They soon transform into a crunchy, rich flavored, pleasant textured treat, superior to any ‘animal’ meats you can find.

Which should come as no surprise, seeing as mushrooms, on average, share more DNA with animals than with plants. As a result they *are* more like animals than plants.

Mushrooms have cell walls made of chitin (the polymer that comprises insect exoskeletons and lobster shells), rather than the typical cellulose found in plants.

Mushrooms do *not* photosynthesize, as almost all plants do. Mushrooms ‘feed’ like animals, via the enzymatic digestion of other living or dead organisms.

Mushrooms even reproduce in ways similar to animals, when viewed at the microscopic level. This ‘polypore’ reproduces by releasing pores from the undersides of the fleshy ‘petals’ of its flower-like body.

It is due to the mushroom’s physiological similarities to animals that at least some of the compounds which allow the mushrooms to thrive in the damp, dark, rotting forest, appear to benefit human health and vitality in similar ways.

Reports that the Maitake will actually kill healthy Oaks are offset by observations that the Maitake tend only to ‘attack’ already dying Oaks, and thus merely speed up the process. A sort of ‘euthanasia’, or ‘assisted death’, if you like. This accounts for its statistical association with ‘sudden oak death syndrome’. It is the old case of ‘fires and fire-engines’.

Healthy Oaks have immune responses that defend them from Maitake and much worse, so it is unlikely that Maitake are responsible for damage to Oak forests. Instead, they speed up the ‘succession’ or ‘replacement’ of old, unhealthy, and dying oaks, with young, vital, healthy oaks that can spring up in the gap in the canopy, and enriched soil, left by the departing Oak.

But the work of the Maitake goes much ‘deeper’ than that. For the Maitake mycelium inhabits the root system of the Oak, digesting the dying roots, leaving complex, and deeply penetrating channels for moisture, air, and water soluble nutrients to penetrate, allowing soil micro-organisms to flourish, and enhance soil fertility for not just the ‘young lion’ Oaks, but the entire forest ecosystem.

For insects will be attracted to the sweet mycelium in the wood. Birds, attracted by the insects and maggots living off, from, and within the old mushrooms, will leave behind faeces full of nutrients, and just as importantly, a diverse range of undigested seeds from their extensive travels. Thus the next cycle of the forest succession story will be even more diverse, abundant, and glorious than the previous.

Shitake mushrooms are commonly grown on pole-wood 'inoculated' with shitake spore. Like all mushrooms, Shitake convert low value carbon into high value protein. Shitake are in fact around 30% protein and full of macro and micro nutrients. Even better, they thrive on low quality wood.

The fluorescent orange and yellow **Chicken of the Wood** (Laetiporus sulphureus) and **Honey mushrooms** (Armillaria) also thrive on Oak.

Species adapted to Tulip Poplars include **Artist's Conk** (Ganoderma applanatum), **Oyster mushrooms** ((Pleurotus), and **honey mushrooms** (Armillaria).

Oyster mushroom farming has become very popular.

Many other species play different, but no less valuable, roles in the forest ecosystem.

And don't forget '**truffles'**. Those underground dwellers prized so highly by gourmets and Michelin star chefs, which you probably will happily sell them, rather than eat yourself. Trees and other woody plants have mycorrhizal relationships with truffles, and you'll probably never guess where they are thriving, unless you have the 'super senses' of a wild pig.

You can incorporate mushroom logs into your topographical management, as 'retaining edges' for swales and swale paths, to provide additional water containment and erosion controls. (Think 'speed-humps and other 'traffic calming' techniques).

Place the dead tree trunks along slope contours, so both ends are at the same elevation, and thus 'level'.

Or place the trunks in your 'medicine garden', for easy access and maintenance. Chose a shaded area, away from direct sunlight, that approaches something like the 'natural' setting you would expect to find this fungi. First smooth the surface to eliminate any 'sharp' edges. You could even carve it into a little garden bench with a backrest.

Drill holes in a 'diamond' pattern at around 4" spacing. To 'inoculate' the wood, pack 'myceliated' sawdust (sawdust mixed with Maitake mycelium) into the holes. You can even get a special tool for this job. Then cover the holes with wax so the mycelium don't dry out, or become dinner for insects.

Plan to quickly replant fruit trees and shrubs around the stump to make use of the composting oak roots and to shade the stump, allowing the fungus greater success.

To select the 'host' wood in the forest, look for White Oaks (for Maitake), or Hemlocks (for Reishi), already on death's doorstep and inoculate them in place, or cut logs off them.

Inoculate the standing and/or cut wood with Reishi mycelium in May or June. Simply drill holes into the wood and push the fungus spore impregnated material into the holes, as you would for oyster mushrooms or Shitake mushrooms.

The Reishi or Maitake will begin its long term contribution by decomposing the log into valuable mulch and rich humus. In the case of **Maitake**, you can expect mushrooms (fruit) in two to five years. These benefits will continue to 'pay out' for years.

Fungi (funghi) play a crucial role in the carbon cycle, breaking down carbon, and converting it into a host of valuable 'products'.

Fungi are often referred to as the 'teeth' of the forest that chomp down on dead wood, converting it into fertile soil. For today's living forest grows on yesteryear's dead forest.

So what a windfall that these organisms, so beneficial to the forest ecosystem, are often not only edible, but delicious, and highly nutritious. Of course great care must be taken in learning to identify the edible species from the deadly, or merely hallucinogenic.

Mushrooms are a great source Vitamin D and protein for the winter months, when other sources of nutrients, let along calories, can be scarce.

While on the subject of Vitamin D, remember that if you exposed oily (not freshly over-washed) skin to winter sunshine for 15 minutes or so, vitamin D will be synthesized by your skin. This is just one case where the American notion of exaggerated 'hygiene' has proven destructive of health and well-being. Be sure to let your children play in the mud and microbes, to build up a healthy immune system. Exaggerated washing damages the skin. If you are worried about 'germs', consider that the average adult human is, by body weight, composed of several kilograms of bacteria, germs, and other 'parasites' that live on the skin, hair follicles, mouth, and digestive tract. Without them we would perish. Or become very sickly. We are naturally 'inoculated', like the seeds and roots of plants in our gardens, by exposure to these micro-organisms. This used to happen directly as we passed our biological mother's birth canal, then fed at her breast, then played in the dirt. Today's rampant ill health and lack of well-being is surely related, in part, to 'modern' 'surgical births', bottle-feeding, and excessive 'hygiene' and passive, indoors, computer and television childhoods.

If soaking logs and inoculating them, or setting up compost piles seems like a lot of work, then consider stuffing coffee bags with compostable material. The bags rot, and the entire bag becomes a perfect home for mycelium / mushrooms. Just seed them with mycelium spore and leave the bag to rot, and produce mushrooms for you to harvest.

Pot*ay*to, pot-*art*-o

There are a huge range of potato varieties, offering an extended *palette* of colors, flavors, and textures. My favorites are the sweet potatoes.

Starting a potato crop can be as easy as placing some newspaper on the ground, poking a hole through it, and placing a potato on that hole. Cover the potato and paper with mulch, and leave it to become the 'seed potato' for your new potato patch.

You can also propagate potatoes from seed. Planting different potato types together can lead to the wind, and insects, cross-pollinating your crops. The result can be 'boutique' varieties with particular flavors and colors. These can be sold to local restaurants as a cash crop.

Perhaps more importantly, specific cross-breeds that are ideally adapted to the soil and growing conditions of your garden, or property.

Potatoes store well in a 'root cellar'. If your home doesn't have a cellar, you can dig one out, and cover it with a 'turf' roof.

If you get your hands on 'heritage' seeds be sure to try them out. For example you might plant Russian old corn grains, and the American Indian staple 'Black maize', among your other crops.

Today big Agri-chemical lobby groups, owned and controlled by the Bankster's, along with huge global corporations like Monsanto, are doing their best to make it criminal to harvest seeds from *any* plant. They are seeking to 'centralise' everything, including food production. To limit plant varieties to a few GMO plants they own the patents to. There are theories that one function of 'chemtrails' is to contaminate the soil with aluminum oxides, so that only the Bankster corporation's own seeds, specifically engineered to grow in soils with high aluminum oxide concentrations, will grow.

So be warned. Start collecting and sharing 'heritage' seeds, and your own local hybrids. Network with others, and set up 'seed banks'. If you find a plant type ideal for your local area, share it. Grow it. Harvest your own seeds. Become independent of the Agribusiness model.

Drip irrigation

While still at the planning and design stage of any new garden, you might consider installing drip irrigation.

As long as the water source is at a higher elevation than the garden, you should have adequate natural water pressure. So if you are intending on using drip irrigation, plan it in the context of pond, dam, and water tank placement. Consider the garden and water supply Vis a Vis each other, to work out the optimal position for both. Remember it is not about maximizing and minimizing any element, but gaining the best overall 'basket' of outcomes. So the ideal position for a garden or dam might need to be sacrificed to 'make the whole work best'. You may decide that the benefits and convenience of drip irrigation are outweighed by the costs, and implications for your total design.

The advantages of drip irrigation is that it supplies plants at the ground level. You will lose less moisture to evaporation and wind. You will be watering your crops, rather than the paths and weeds surrounding them. Your plants should suffer fewer fungal diseases.

You can use any old hose, or buy purpose-designed PVC tubing. The tubing will need to have holes placed in it, to allow water to 'drip' out.

You can join lengths of such tubing with short, internal, plastic connectors, to make your system flexible, and mobile. You can move it around your garden to meet your changing irrigation needs.

However consider the pros and cons of using irrigation before making the investment. Irrigation can wash out water soluble soil nutrients. It can flush out nitrogen, and leave it to evaporate back into the atmosphere it was 'fixed' from. These water soluble nutrients can end up in your ground water and ponds, where you don't want it. Nutrient rich water often fosters blue-green algae which uses up all the free oxygen in the water, basically suffocating aquatic life.

Just as powerful an argument against using any kind of regular automatic irrigation is that if you leave the soil to itself, it will naturally protect itself from drought by 'closing up', in the same way plants will 'close up' their leaves, reducing surface area evaporation and loss of moisture. Then when the relative air humidity increases, as it does before rain, the soil and plants will naturally 'open up', and thus be in a position to take full advantage of the rains when they come. The soil will then soak up this rain.

If you artificially and regularly irrigate the soil, the soil, and the plants, will remain 'open' even in times of relatively low air humidity, and rainfall. The plants won't bother sending down deeper roots in search of water. They will become dependent upon the irrigation. And if you stop, at any time, or run out of water, the plants will be unable to cope. The soil and plants will also lose a lot of moisture to evaporation. Basically you are 'confusing' the soil with misinformation. The natural feedback loops and thus the soil and plants natural 'self-regulation' processes get 'out of whack'.

The water you use may also contain salts, which are left behind in the soil when the water evaporates or soaks down through the soil to the water table. Any chemicals added in the form of fertilisers, pesticides, and herbicides only make this problem worse.

Just one example are the salt deserts produced by large scale irrigation of U.S cotton fields set up during WWII.

The government had to build mounds and swales to protect the highways from becoming lost to the sands. They used large heavy wheels with '8 pointed star' shaped 'teeth' to impress funnel shaped depressions into the sand, which would catch seeds and deliberately 'sown' seed balls, moisture, animal manures, and other organic material blown on the wind. This will give moisture a chance to sink into the ground, and the organic material would hold it there, while allowing microorganisms to begin bringing the soil back to life.

The swales and mounds eroded over time, but did the work they were designed to do, leaving behind alleys of vegetation which stabilized the top layer of soil and sand.

In Australia huge swathes of land have suffered from 'die-back', as rising water tables resulting from deforestation raised salty ground water levels. The salt killed off all vegetation, leaving 'ghost' forests of the remaining tree corpses.

Reversing this problem is very difficult, as the solution, replanting forests to lower the water table, requires that we first find places to plant the new trees, where the water table low enough for new saplings to survive.

In some cases the salt from the water tables, irrigation, and chemical interventions, has been exuded on the surface as salt crystals.

Emergency food supplies

If you want to 'prep' for an emergency, by storing up storable foods, your best bet is to buy from a Mormon, as their religion requires them to keep enough food stored to last for one year. They have been ‘prepping’ for longer than anyone else, and know what they are doing. Also their prices are the most reasonable you will find.

Of course you can prepare your own emergency supplies.

Your best bet for protein will be soy flour, and dried beans. You will probably want to keep a large supply of canned goods, as they contain a lot of water, and come packaged in rat-proof containers.

In fact all your supplies should be stored in sealed metal or glass containers that rats cannot eat through. Don’t take the risk with using any plastic or wood. Hungry rats and other foraging animals will eat through that. And what they don’t eat, they will contaminate with faeces.

The problem with anything in plastic is that any weevil eggs present can end up hatching, and eating through the packaging, and into other packages of food.

Ideally, to prevent any eggs present from hatching, you will seal your foods in airtight metal containers. This way nothing that hatches will survive. And nothing can get at your food from the outside either.

If you are packing glass containers into boxes, first place rubber bands around each glass, so they don’t touch, and won’t be broken.

To kill bugs, bacteria, eggs, and larvae, of anything in your homemade food preserves, funnel the food into jars right to the top. Place them in an oven pre-heated to 225 degrees for 2 hours, with the lids off, on a cooking sheet.

After 2 hours, turn off the oven, and remove the jars with a cooking mit. They will be very hot. Then place the lid on the jars, screwing the lids tightly shut.. As the jars cool, the air pressure differential will pull the lids tightly down, to form a good seal. This is how farmers have preserved food for hundreds of years, with good results.

An alternative is to kill the bugs, bacteria, larvae, and eggs by placing the food in the jars, screwing the lids tightly shut, and then leaving them in a freezer for five days. This should kill all these potential threats to your food supply integrity. Then take a ‘food saver’ with an adaptor for the jars, to suck out any air from the jars, leaving them vacuum sealed. This should remove most of the oxygen. But to be sure, first place a 300 cc oxygen absorber in the jar. This is an extra step that shouldn’t be necessary, but which some people still take, just to be sure no bacteria can ever grow in the food. Then store the containers in a cool dark place, like a root cellar.

You can buy ‘oxygen absorbers’ convert moisture and oxygen into rust, to remove oxygen and moisture from your stored foods, thus depriving any eggs present a chance to hatch and ruin your food.

You can make ‘home-made’ oxygen and moisture absorbers by placing iron filings in salt and dried clay. The dried clay will attract moisture to the iron filings. As the iron filings oxidize, they convert any moisture and oxygen present into rust. The salt speeds up this process of ‘rusting’, as anyone who owns a car and lives near the sea already knows.

The simplest version of this is just to throw bits of iron into bags of salt, and place this inside your metal storage bins.

Another commercial alternative is to use ‘hot hands'. They work using powdered iron, and will do the same job as the oxygen absorbers. Two hot hands will suffice for two 5 gallon buckets.

Keep your supplies basic, simple, and to the point. Your priority will be to ensure you have enough calories and water. So start with sugar stored in sealed metal containers. Sugar is a natural conservative, and will keep for years. Next consider high protein, nutritious, dried beans of all varieties. These will also keep for years. Rice is a simple source of energy you can easily store, though it is nowhere near as nutritious as beans. Soy sauce is a great condiment (flavoring) and source of protein and salt that will keep for years. Instant noodles, high in fat, are also a great source of calories that can be eaten 'dry' or cooked.

If you have a bigger budget, of course you can buy many types of canned and freeze-dried, pre-prepared meals.

Or buy your own home freeze-drier, and freeze-dry entire meals yourself.

You can preserve any number of fruits, and tomatoes, by sun-drying them on a clean cloth.

Preserving foods in glass jars, known as 'canning', is a tried and trusted means of conserving spring and summer surpluses for winter.

German 'Sauerkraut' is cabbage fermented in barrels. The Korean version of this is 'Kim Chi', which is buried in the ground while it ferments. Both are very high in vitamin C and other vitamins and minerals.

In fact fermented foods offer many health benefits, aside from the long term storage benefits of fermentation.

In fact the Ancient Egyptian workers almost lived off 'small beer' (low alcohol beer). Simply because it is much easier to store beer, which is fermented grain, than it is to keep water 'potable'. Water can go 'off' quite easily, whereas alcohol is a natural preservative.

One thing few people are aware of is that you can 'sprout' dried wheat and alfalfa seeds, lentils, and all sorts of beans from mung beans to soy beans. This actually increases their nutritional value, in terms of vitamins, minerals, and protein.

Simply soak the seeds or beans in water, and rinse them two or three times a day. Within a few days they will 'sprout'. Place them on trays, and place the trays on your kitchen window sill. They will grow even in the middle of the darkest winter. Rinse them off and eat them raw. This is a great way to ensure you have 'fresh' food in your diet at all times of the year, under almost any circumstances.

'Guilds'

A 'guild' is an association of plants and animals that work together. These are sometimes referred to as 'companion' plants and animals.

The ancient Aztec trinity of corn, beans, and squash is perhaps the oldest plant 'guild' we know of. The legumous beans fix nitrogen for the corn and squash, literally fertilizing them. The squash provides ground cover to prevent weeds competing with the corn and beans. The beans use the corn stalks to grow vertically.

But probably the most famous 'guild' is tomato and basil. Along with marigolds, basil protects tomato from white fly. Basil is one of the most beloved and versatile of herbs. It just happens to go perfectly with tomatoes.

Another famous ‘couple’ is garlic and roses.

These plants protect each other, and thrive in each other’s company.

Rosemary and lavender are good general pest controllers. They are also desirable in their own rights. Rosemary is a culinary herb, while Lavender is a favorite scent, and will protect stored clothing from various ‘predators’.

Plant companion / partner plants along borders, among your crops, and in strips between rows of crops, to reduce and prevent the damage done by potential predators. You want to first prevent them ‘getting wind’ of your garden. Then you want to discourage them with odors they find unpleasant. Next you want to encourage the predators of your plant’s predators to take up residence, to deter, and destroy, any invading pests.

Calendula protects all plants, especially potatoes and tomatoes, from nematodes. You can also eat it.

Flowering plants like Nasturtium, with its strong odor, protect cabbage and similar plants from black aphids, repels Bing beetles, and protects a range of plants from various parasites. You can even eat the leaves, flowers, and young seeds of this climber, which can reach the canopy of tall trees. You can grow it from cuttings, or from seeds.

Wormwood protects cabbages from root maggot, and repels radish nematodes.

Basil and marigolds protect tomatoes, for example, from white fly.

Onions, garlic, parsnips, and carrots protect other plants from fruit fly. The small headed flowers of carrots and cabbages also repel predators.

Pennyroyal, a ‘living mulch’, is known to repel many types of pests from your garden.

Pidgeon pea is great nitrogen fixing legume often planted among orange tree saplings to provide shelter and nitrogen for them.

Lady birds and hover flies are attracted to the pollen of chives and other herbs. They then lay their eggs on the apple tree. When their larvae hatch, they eat pests on the apple tree. So plant chives and herbs at the base of apple trees.

Praying mantis and lady bugs kill pests, so if you see them ‘enjoying’ any particular plant or condition, replicate that plant or condition to encourage more praying mantis and lady bugs (lady bird beetles).

Note that flowers in general are great for attracting pollinators like bees and other insects. They are often of medicinal value. They can also be sold or bartered with ‘the outside world’ for their aesthetic value, as well as beautifying your own home and property. But there’s more. Some flowers with small florets like daisies attract beneficial insects like hover flies that eat aphids

To manage a slug or snail problem, Indian Brenner ducks have the best reputation as slug and snail slayers, but like other ducks, they may end up eating your greens as well. If this becomes a problem, lizards, frogs, hedgehogs, birds, snakes, and some beetles can be encouraged to visit your gardens. You can also place copper cylinders around seedlings to deter slugs and snails.

Aromatic plants like thyme, sage, estragon, mint, and parsley are also good deterrents for slugs and snails.

So be sure to create suitable ‘habitats’ for lizards, and frogs, by planning some small and larger ponds near your kitchen garden, and ensuring there are some old pipes, hollow logs, large rocks, and tree trunks as ‘crawl zones’ for them to find safety from predators under, and within, and to soak up some sunshine, directly, by sunbathing, or from the trapped warmth stored within these thermal masses after the sun has warmed them.

And if you have your own ducks, you should provide them with a meshed enclosure to protect young ducks during their first few weeks of life from crows, and more obvious birds of prey like hawks.

If you grow rice in flooded fields, add ducks at the right time and they will eat up all the weeds, leaving the rice seedlings untouched.

The main reason for ‘plagues’ of pests is the very unnatural condition of having one monocrop covering a large area. This is like setting up the ‘golden arches’ on a highway of hungry travelers, with directions.

So avoid concentrations of any one vegetable, fruit, or crop.

Plant strong smelling, aromatic, spicy plants like leeks, onions, and garlic, among your vegetables, so their strong scents will mask the scents of the vegetable s they are planted among, and make it harder for their predators to ‘track’ them by smell. At best it will confuse them. They will focus on ‘clearer’ signals from other plants, and leave your garden alone. Leeks are one of the tastier forms of pest control. Cut off the tops for eating, then replant the bulbs among your lettuces, Swiss chards, and similar plants. You can ‘thin out’ the other ‘bulbs’ to eat some, while leaving some on ‘camouflage’ duty.

It is a general principle in ecology that the greater the variety of synergistic guild systems, the more stable the entire system as a whole will be. The more adaptable and resilient it will be in the face of extreme changes and challenges. Even almost total collapse of the ecosystem. If you have a diversity of healthy, functioning guilds, at least some of these are likely to survive any catastrophic immediate or chronic attacks on the entire system.

Anthropologists, for example, remind us that at some time in the last 30,000 years, the entire population of humans was reduced to a few dozen fertile women. They can trace the DNA of every human alive on the planet today to this group, who survived when the rest of our species went the way of the dodo.

After a systematic assault on its foundations, an ecosystem can slowly repair rebuild itself as long as it has a few synergistically functioning guilds. The new ecosystem that results may be very different to the earlier one. However the point is that some intact, viable, functioning basis for regeneration, and new generation, will have survived.

Whether the human species is part of that new ecosystem will depend upon whether we, as a species, can manage the same trick. Diversity of genetic and cultural protocols is a pre-requisite. It may be the isolated Amazonian Indian tribe that continues our human journey, rather than the Bankster elites and their golems. It seems to me more likely. And probably a much more inspiring future, compared to the current, and worsening, ‘1984’ scenarios we lived through in the ‘Jew’.S.S.R, and are beginning to re-live under our current executive order driven ‘Jew’. S.A and E.’Jew’ tyrannies'.

Harvesting tips

If you cut lettuce, celery, and many other plants, a little above the ground, you can enjoy a second harvest later in the season, or allow the lettuce to 'go to seed', to collect seeds for next year.

Whether you harvest one, or twice, leave the part of plant you don't eat in place to rot. At very least cut the plant just above the ground and leave the roots intact, and the earth undisturbed.

This avoids compacting, especially during wetter periods, and leaves the soil structure intact, aerated and friable, after the roots have decomposed.

Many plants will naturally re-seed in places you didn't intend to grow them. So re-plant any seedlings that have sprung up around the farm, into your garden beds.

If you leave the part of the plant you won't be eating, 'in situ', leaving it to decompose where it was growing, your soil will benefit from not having been unnecessarily disturbed, compacted, and exposed. The resulting diverse root systems that fill your garden beds will ensure a wide and growing biodiversity of soil microorganisms and soil flora and fauna, and thus a continued increase in soil fertility.

The roots will rot, leaving complex channels 'etched' in the soil, for moisture and water soluble nutrients to fill, and for microorganisms to inhabit.

As the season progresses you may find your garden beds becoming overcrowded, in which case you can 'thin them out', with an early harvest of some of the faster maturing of the plants.

Human urine as fertiliser

Human urine is a great source of nitrogen. But water it down before using it, to avoid 'burning' tree roots. Use it on fruit trees, and soak compost in it. However legally you are not supposed to apply it directly to crops. Even though fresh urine is sterile, apparently if the 'source' is infected with a virus like Hepatitis, the virus can remain active for some time in the expelled urine.

To avoid any contamination as the urine exits the body, you will want to allow the initial stream to pass, before beginning to 'collect' it. In this case the fresh urine is anti-septic, and can be directly applied, from the source, on open wounds, to dis-infect them. It is often recommended for athlete's foot or warts. It has been used, over the centuries, as a dye fixer, as a hair conditioner, and as a food coloring. For example in the court of that great gourmet and gourmand, King Henry the 8th. Many people enjoy the intimacy of 'golden showers', with no harm done to anyone. There are even expensive up-scale bars where people are served their own, chilled, urine. People drink it for supposed health benefits. Many psycho-active drugs like cocaine will pass through the body after consumption, and remain active in their urine. So I imagine there are a lot of cocaine addicted rats in New York City!

Potty talk

I wonder when we will see the first 'kitty litter' for human use. Water is becoming such a scarce commodity that literally pouring 'potable' drinking quality water down the drain is bound to become untenable, sooner or later.

And so we are left with the 'dry' options.

Today the 'S bend' acts as a 'water trap' between your bathroom and the sewer system, keeping smells from the sewer trapped behind a barrier of water. However it does nothing about the smells originating in the bathroom and toilet itself.

A simple exhaust fan, using no more than one dollars' worth of electricity for an entire year, can solve this issue. The fan turns on automatically as soon as anyone lifts the toilet lid, or if you like, enters the bathroom.

There are many types of 'dry' toilet. Some use an 'ash and sawdust' compost.

By keeping the toilet seat in the middle of an untypically 'wide' and 'straight' toilet construction, there would be nothing to 'clean' except the toilet seat. This would save a lot of work few people enjoy doing, and would make toilet chemical cleaners redundant.

The only difference in operation is that 'putting the toilet seat 'down' would mean something. I don't understand why females will leave the toilet cover up, but complain about the seat being down. For every time you flush, particles of waste are ejected from the toilet, if the cover is up, to find a new home on toothbrushes, hand towels, tap handles, and door handles. There is an added visual and olfactory incentive to close the actual toilet cover with a 'dry' toilet design.

The 'waste capture' part of the toilet takes the form of a 'wheely bin', for ease of removal. It usually takes around 6 months to fill the bin. It is then wheeled out and replaced with a new waste capture 'wheely bin', and left to 'compost' for around 5 months, before being 'turned out', as compost for fruit trees.

At the moment laws prohibit this 'compost' being used on 'food' crops, such as your kitchen garden. But the use of human wastes as fertilisers is as ancient as China. The ancient Chinese had a complex system for the collection of human wastes from the towns and cities, from where it was transported to the farms, to be applied directly to the food crops.

[No-one who observes typical U.S 'throwaway culture' (which refers as much to its workers and 'disposable' soldiers), will be surprised that the U.S makes use of only 5% of its organic waste, as compared to 75% for Germany. Germans have a history of 'making do' with 'ersatz' goods, and recycling raw materials, due to U.S supported illegal British trade embargoes, being denied overseas colonies while enduring constant demonisation since Bismarck, and U.S tolerated Zionist trade embargoes. When the Soviets, French, and British 'Allies' stripped Germany almost totally bare of industrial machinery, and occupied, and later stole, most of its natural mineral and energy resources, German fulfilled Nietzsche's famous dictum 'That will does not kill us, only makes us stronger'. Oh if you still think Germany were the 'bad guys' in WWI and WWII, then it's time to 'update' a.k.a 'revise' your knowledge, like conscientious authors update and ‘revise’ their books in light on new facts and information. Of course you cannot be blamed for being fooled given the full spectrum Zionist propaganda since Bismarck, whose almost sole aim was the demonisation and destruction of Germany and Germans.]

We have managed to turn the asset called ‘human waste’, into a liability called ‘waste’. We could be producing natural gas, and fertilisers, from our human waste. Instead we build extensive, water dependent sewer systems that ultimately do a lot of *harm* to the environment.

Especially at a time when housing density is on the rise, we can foresee a future in which ‘waste’ management is taken seriously. In which waste is avoided. And human waste is exploited as an asset. Returned to the soil from which it came, as fertiliser. Used to heat our food, our homes and our greenhouses. It could even be used for lighting, as an addition to solar power, and other sustainable, bio-energy sources.

Urine is sterile when it leaves the body. Or to be more precise, after the first initial stream passes the urethra, it is sterile.

Combine human urine with wood ash and you have a perfect fertiliser for fruit trees. Studies show up to a 420% increase in yields resulting from the application of this natural fertiliser.

Urine is high in the three major macro-nutrients plants need. It is very high in nitrogen, and contains significantly beneficial amounts of phosphorous and potassium.

In fact human urine is so high in nitrogen that it will actually burn the tree roots if you don’t dilute it with 4 parts water or ‘worm tea’ from your ‘vermi-compost’.

The oxygen in well aerated water promotes bacterial and microbial life in the soil and compost around your trees. ‘Worm tea’ acts as a natural repellant for many pests and fungi. Think of it as an immune booster and fertiliser.

Mixing kitchen scraps, straw, and human urine in with your compost, will ensure beneficial microorganisms get the carbon and nitrogen they need to thrive. These microorganisms do the work of breaking down your compost into valuable nutrients for your gardens. They will reproduce and convert the organic matter into high quality compost.

These are all reasons to start pee-into into bottles, rather than literally flushing your urine down the drain. Not only wasting the urine itself, but tens of liters of fresh drinking water a day. Females may use a simple ‘funnel’.

This can save you money you’d otherwise need to put into a pay toilet, if you are ‘out and about’. In the case of males, it is easy to cut holes in your pockets, and find an old yoghurt bottle with a large neck, that will easily slip down your pants leg, and allow you to urinate virtually anywhere from a Metro-train to Red Square, without any bother.

You can then empty the bottle on the next tree, lawn, garden bed, or gutter you come across, taking a little care that the liquid goes where it will not be a nuisance to anyone in any form.

In the home, and on your property, you can use it in the ways we have been discussing.

Many people are adapting to 'dry' toilets in 'moveable mini-homes', to save on plumbing and water costs.

And if you do 'hit the road' in a camper, you may end up using the simplest 'toilet' design of all. A bucket lined with several layers of supermarket bags, with a toilet seat on top. Each time you use it, you simply remove a few bags and tie it up, and dispose of it appropriately, as you would for a dirty disposable diaper or sanitary napkin / tampon. You would use this for solid waste, while using a bottle for liquid waste.

In another chapter we will look at how easy it is to convert human bio-waste into natural gas, for cooking, heating, and lighting.

Rocket toilets

Sure it can sometimes sound like someone is trying to 'take off', and the average toilet could produce enough biogas to send a rocket into orbit, but the expression 'Rocket toilet' refers to its *appearance*.

Once you've decided on using a 'dry' toilet system, you may consider an outdoor 'rocket toilet'. It can be built right up against your home, so that while it is located outdoors, the door opens into your home'. As the toilet itself has to be quite high off the ground, you will need to locate it on the second floor, or off a balcony.

This style of composting toilet keeps the human waste capture container at a distance from the toilet itself. The name comes from the 'rocket' shape of the entire setup.

If you set up this toilet as an 'outside loo', you will either need to build stairs up to the toilet, or locate it on the edge of a steep slope.

Each time you use the toilet, simply sprinkle dry, absorptive material from the toilet, to keep the composting waste relatively dry. This will prevent the waste attracting flies.

The same sort of rules apply to removal of the waste capture container when it is 'full'. Leave the entire unit in an appropriate spot for a year or so to 'ferment', and 'dry out', thus destroying any potentially harmful bacteria or other pathogens. You can then spread the final product around fruit trees.

According to government regulations, you are not legally allowed to use human wastes on vegetable gardens, even though the Chinese have been doing this for centuries, if not millennia.

As an aside, on many old farms, the latrine was built out over the pig-pen. Pigs will eat anything, even human excrement. So it is debatable if this is the reason they are considered 'unclean' by some religions. Or if it is because their god was at some time in the past worshipped in the form of a boar. Or had taken the form of a boar, for a time, and in that form had been accidentally killed by a human. It may just be because a slaughtered pig, when hung up, looks very much like a human. Some say it even tastes like human flesh.

Markus on marijuana and opium

No, this is not going to be an amusing auto-biographical anecdote, but a serious consideration of the pros and cons of growing marijuana and opium poppies got medicinal purposes, and in the case of hemp, for fabrics, crafts, and clothing..

These two crops offer many medical benefits for gardeners who wish to live in quite isolated locations, 'off the grid'. Part of becoming independent is being able to cope with medical situations, and especially chronic pain. End of life decisions are also much easier to make when you have access to a potential form of euthanasia as opium.

Marijuana has many scientifically peer-reviewed, clinically tested medical benefits. Many more are likely to be discovered, once the 'big pharma' and the medical profession lose control of the U.S congress, and researchers become free to carry out research, and publish their findings, without fear of making a 'career limiting move', or suffering immediate, direct, victimisation and legal prosecution. Their 'self-censorship' will end, and the emergence a whole new world of opportunities are likely, in terms of preventing, and treating, many chronic, debilitating, and deadly diseases which plague us today.

Of course the hemp plant has a tradition going back as far as recorded history, as a textile, for ropes, sails, house furnishings, shoes, clothing, and general craft and building materials.

Opium has a similarly long history of use as a pain reliever. It was in fact the active ingredients in a host of 'over the counter' remedies, and even 'Papal wine', until around the time of the Vietnam war, and the CIA's monopolization of the 'illegal' drugs trade around the world. At this time lobbyists managed to get governments, such as the Australian government, to 'crack down' on opium, and have it removed from the many products it had been, without any known health consequences, used in for millennia.

Opium grows everywhere from Tasmania to Afghanistan. I don't know of any place where someone hasn't grown marijuana. So these two products deserve our attention as potential 'universal' crops.

In places where these two natural products are 'banned substances' (like many of my books), the decision to grow them will be impacted by the prospect of not only facing legal problems yourself, but becoming associated with criminals. Criminals who might seek to steal your crops. Criminals who might infiltrate your community to grow such crops as 'cash crops', as a 'fast track' to 'easy money'.

There is also the risk of members of your community becoming addicted. However the same problems apply to alcohol, only many fold. Drug addictions are usually a symptom of social breakdown. An indicator that there are problems that need to be dealt with on an individual, family, and group level. They can easily be overcome, if we are willing to deal with the real social problems that give rise to addiction. And if you are going to be addicted to something, then better to have control over its production, than to be dependent upon 'dealers', including those 'official dealers' known as psychiatrists and doctors.

So while I would never suggest you participate in any illegal activity, whether it be researching and reporting on 'The Holocaust' in any of the lands where that activity is defined as 'criminal', or reporting on a neighbor with a surprising amount of hydroponics gear in their garage, I would suggest you consider whether the government is 'by the people, of the people, and for the people', or actually 'by the elites, for the elites, and merely imposed upon the people'.

My final note on this subject deals directly with euthanasia. The most obvious sign of a slave society is that the slave owners will not let their human capital destroy itself. Suicide is basically a form of 'destruction of property', in a slave society. None as so enslaved as those who think they are free. If you think the laws that make euthanasia, and assisting someone in that act, a criminal act, are there to 'protect' you and your family, then think again. They are there like any 'property right'. If you were your own property, you would have the right to dispose of your 'self' as you saw fit. The government won't stop you burning your prized Monet artworks. Because YOU own them. So ask yourself who owns YOU, if you are not at liberty to destroy your 'self'?

Hanging is the best option for able-bodied people with a little more than average courage, determination, and will. But many people are unable to hang themselves. Either physically or emotionally. And for these people, an 'overdose' of opium must be about the 'perfect' solution. Even better than synthetic animal euthanasia drugs like Nembutal. And while someone may one day publish a recipe for 'home-made Nembutal', opium, by all accounts, still seems like the simplest, easiest, most accessible, and pleasant, form of euthanasia out there.

Maybe the issue of euthanasia has never come up among your circle of friends and acquaintances. But with over 20 books published and widely available, for many years, the most common reason people come to my TROONATNOOR WordPress page is to read my post on 'Home-made Nembutal'. So sooner or later it probably will be an issue that you, your loved ones, your friends, or someone you know, will be dealing with.